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SUPPLEMENTAL SITE INSPECTION REPORT

RICHARDSON FLAT TAILINGS

SUMMIT COUNTY, UTAH

TDD F08-8903-06 - PAN FUT0039HDA

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FILE PLAN

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# SUPPLEMENTAL SITE INSPECTION REFORT RICHARDSON FLAT TAILINGS SUMMIT COUNTY, UTAH TDD F08-8903-06 - PAN FUT0039HDA EPA ID UTD980952840

# 1.0 INTRODUCTION

This report was prepared to satisfy the requirements of Technical Directive Document (TDD) FOF 8903-06, issued to Ecology and Environment, Inc.'s Field Investigation :am (FIT) by the Region VIII office of the U.S. Environmental Protection Agency (EPA). This report details sampling activities and provides a discussion of analytical results for samples collected during this supplemental site inspection (SI) at Richardson Flat Tailings in Summit County, Utah.

The FIT performed the field work from July 18 through July 20, 1989. FIT members conducting this investigation included Kevin Mackey, project officer; Steve Yarbrough, site safety officer and Dan Kenney, sampler. Site access was coordinated by Tom Burns of EPA and EPA Regional Counsel. Sampling procedures used during this investigation conform to requirements established in the Region VIII Standard Operating Procedures for Field Operations at Hazardous Waste Sites (SOP III-2 E & E 1989). The sampling effort was conducted under the approved Sampling Plan (TDD F08-8903-06).

## 2.0 OBJECTIVES

The supplemental site inspection of Richardson Flat Tailings was designed to support EPA efforts to respond to comments on the nomination of the site to the National Priorities List under the current Hazard Ranking System. Specific objectives of field activities were to:

o Define the surface water drainage patterns throughout the site area;

- o Verify a release of inorganic contaminants into Silver Creek;
- o Identify source material contributing to metals contamination in Silver Creek:
- o Measure the distance from the site to the point at which water is diverted from Silver Creek by the G.M. Pace ditch.

All of the aforementioned objectives were addressed during the July 18 through July 20, 1989 sampling effort and during a site visit conducted by Kevin Mackey and Robert Henry of E & E FIT on March 9, 1989.

# 3.0 BACKGROUND

#### 3.1 LOCATION AND SITE DESCRIPTION

Richardson Flat Tailings lies within the northwest quarter of Section 1 and the northeast quarter of Section 2, Township 2 South, Range 4 East, Salt Lake Meridian, in Summit County, Utah. The tailings cover an area of approximately 160 acres on a topographic depression located one and one-half miles northeast of the town of Park City (Figures 1 and 2).

The mill tailings at Richardson Flat came from the Keetley Ontario Mine and other metal mining operations currently owned by United Park City Mines (UPCM). The most recent use of the area for tailings disposal was from 1975 to 1981. During that time UPCM had all its mining properties leased to either Park City Ventures or Noranda Mining, Inc. who constructed and operated milling facilities on UPCM properties. In May of 1974, the Utah Division of Health - Water Pollution Committee approved plans by Park City Ventures to construct an embankment, dikes and a diversion ditch to contain mill tailings deposited on Richardson Flat.

#### 3.2 PREVIOUS WORK

The original FIT site inspection at Richardson Flat Tailings was conducted during the summer of 1985. One background monitoring well was installed by the FIT as part of the investigation. The background well and two existing UPCM wells located at the base of the dam were sampled. In addition, six surface water samples, one surface soil sample, two subsurface soil samples, four surface tailings samples and four subsurface tailings samples were collected during the 1985 sampling effort. Findings of the original site inspection are discussed in the Report of Sampling Activities (TDD R8-8505-27) and the Analytical Results Report (TDD R8-8508-07).

In July, 1986 the FIT conducted high-volume air sampling at the site. A report of air sampling activities (TDD R8-8605-12) and an analytical results report for air sampling (TDD R8-8608-05) provide details of field work and data results.

The FIT submitted a Hazard Ranking System (HRS) package for Richardson Flat Tailings on September 3, 1987. Based on documented observed releases of inorganic contaminants to surface water and air, the site received an overall migration score exceeding the 28.50 threshold value required for nomination to the National Priorities List (NPL). EPA proposed Richardson Flat Tailings to the NPL on June 14, 1988.

## 3.3 SITE GEOLOGY, HYDROGEOLOGY AND HYDROLOGY

#### 3.3.1 Geology

Richardson Flat Tailings lies within a broad, gently rolling flat north of Park City, identified as Parleys Park (Figure 1). Over half of the total area (approximately 35 square miles) of Parleys Park is underlain by unconsolidated deposits of a poorly sorted mixture of clay to cobble size material. The unconsolidated deposits, which are saturated to within a few feet of the ground surface, occur primarily

along Silver and East Canyon Creeks and in the flats northwest of Quarry Mountain. The rest of the park is underlain by consolidated rocks including volcanics of Tertiary origin and Knight Conglomerate (Baker 1970).

# 3.3.2 Hydrogeology

The water sources for wells in the Heber-Kamas-Park City area are primarily consolidated rocks in the mountains and unconsolidated alluvial fill in the valleys. Few wells exist within Parleys Park, so the unconfined aquifer characteristics in the area are not well understood. There appear to be no well-defined beds of material of very high or very low permeability and no indications of the existence of artesian conditions. The average saturated thickness of the unconfined aquifer is broadly estimated to be about 40 feet.

The general ground water flow direction corresponds with the regional surface water flow directions. Recharge to ground water in the unconsolidated deposits in Parleys Park comes from direct infiltration of precipitation, runoff from the mountains and secondarily from subsurface inflow through consolidated rocks (Baker 1970).

# 3.3.3 Hydrology

Parleys Park is drained by East Canyon Creek and Silver Creek, both tributaries to the Weber River. Silver Creek which flows in a northerly direction west of and near the northern extension of Richardson Flat Tailings, has been channelized for irrigation purposes both upstream of and downstream from the tailings. The nearest diversion from Silver Creek downstream of the tailings is the G.M. Pace Ditch used for flood irrigation of alfalfa fields and pasture. The confluence of Silver Creek and the G.M. Pace Ditch is 2340 feet from the north side of U.S. Route 40, as measured along the course of Silver Creek.

A diversion ditch was constructed as part of the effort by Park City Ventures to contain tailings material deposited on Richardson Flat. Construction of the diversion ditch has altered the drainage pattern as depicted on the 1955 USGS topographic map (Figure 2). The diversion ditch originates east of the tailings and terminates in the marshy area near the embankment at the northwest portion of the tailings. Figures 3, 4, 5 and 6 depict the course of the diversion ditch as viewed on an oblique aerial photograph provided by EPA Environmental Monitoring Systems Laboratory (EMSL), dated June 1984.

Normal annual total precipitation for Richardson Flat is reported between 16 and 20 inches (Baker 1970). The one-year 24-hour rainfall for the area is 1.25 inches (U.S. Dept. of Commerce 1963).

# 4.0 SAMPLING ACTIVITIES

## 4.1 SAMPLE COLLECTION

FIT sampling activities at the Richardson Flat Tailings began on Tuesday, July 18, 1989 and continued through July 20, 1989. The sampling team consisted of Kevin Mackey, project officer, Steve Yarbrough, site safety officer and Dan Kenney, sampler.

FIT sampling activities were observed by UPCM personnel Kerry Gee and Ed Osika and consultant Bill Bullock of MSE, Inc. of Butte, Montana. The FIT provided split samples to UPCM personnel for each sample FIT collected. Each split was treated in an identical manner to those samples FIT submitted for CLP analysis.

Samples were collected in a manner which took into account drainage patterns throughout the Richardson Flat area. The FIT collected samples in order to assess possible migration of contaminants offsite into Silver Creek and determine the presence of contaminants in drainage areas. Additional samples were taken from two possible seep locations at the base of the tailings dam in order to assess the likelihood of contaminant migration via seeps and springs from the tailings pond area.

Three tailings samples were collected from the area south of the diversion ditch to characterize the surficial material as a potential source of contamination. According to Summit County ownership plat maps, the property on which these "unimpounded" tailings lie is owned by United Park City Mines.

Two tailings samples were collected from the "floodplain tailings" located on the opposite side of Silver Creek from the Richardson Flat impoundment. There is no containment feature associated with these areas and the tailings material could easily be washed into Silver Creek during storm events. According to plat maps obtained from the Summit County Assessor's office, these floodplain tailings are on land which is currently owned by the U.S. Department of Transportation.

The FIT collected samples from the diversion ditch associated with the tailings impoundment. These samples were taken in such a manner as to determine availability of contaminated material for transport offsite via the diversion ditch structure. In addition, these samples will help the FIT assess the integrity of runoff control structures onsite.

## 4.1.1 Tailings Samples

The FIT collected a total of five tailings samples from various locations throughout the area, as illustrated in Figure 3. These samples included:

- RFT-TA-1 Eastern end of tailings between access road and diversion ditch.
- RFT-TA-2 Southern end of tailings between Union Pacific Railroad tracks and diversion ditch.
- RFT-TA-3 Southwestern edge of tailings between Union Pacific Railroad tracks and diversion ditch.

- RFT-TA-4 Floodplain tailings located on the west side of Silver Creek.
- RFT-TA-5 Downgradient-most sample along the floodplain tailings near Silver Creek.

All tailings samples were collected using a plastic scoop or a decontaminated stainless steel spoon. The FIT composited samples on a plastic sheet prior to placing them in the appropriate sample containers.

# 4.1.2 Surface Water Samples

The FIT collected 12 surface water samples during the course of this investigation. Two sample aliquots were collected at each station. One sample (designated by the station location number followed by an "A" designator) was filtered with a 0.45 micron filter and a barrel filter prior to preservation with nitric acid to a pH <2. The second aliquot (designated by location number followed by a "B" qualifier) was preserved in the same manner without filtering. These samples were collected from Silver Creek west of the tailings pond, from the diversion ditch and from the marshy area located downgradient of the diversion ditch at the base of the tailings dam. The FIT collected one additional sample from the Pace Homer irrigation ditch which discharges into Silver Creek upgradient of the tailings impoundment. Sample locations are shown in Figure 3. Specifically, the samples included:

- RFT-SW-1 Background sample collected from the Pace Homer Ditch.
- RFT-SW-2 Sample collected from Silver Creek near the floodplain tailings.
- RFT-SW-3 Additional sample collected from Silver Creek near floodplain tailings.

- RFT-SW-4 Upgradient sample in runoff diversion ditch.
- RFT-SW-5 Samples collected from the diversion ditch at possible point of tailings entry.
- RFT-SW-6 Sample collected from point of diversion ditch discharge into marshy area.
- RFT-SW-7 Sample collected from the marshy area upgradient of its confluence with Silver Creek.
- RFT-SW-8 Sample collected from the point where Silver Creek enters marshy area.
- RFT-SW-9 Sample collected at culvert area where Silver Creek and marshy area drain under U.S. Route 40.
- RFT-SW-10 Downgradient sample collected from Silver Creek 800 feet upstream of the G.M. Pace irrigation diversion point.
- RFT-SW-16 Background surface water sample collected from Silver Creek downstream from the confluence of Pace Homer Ditch and Silver Creek.
- RFT-SW-17 Background surface water sample collected from Silver Creek approximately 20 feet upstream of the confluence of the Pace Homer Ditch and Silver Creek.

Heavy construction activity upgradient of surface water sample locations RFT-SW-2 and RFT-SW-3 resulted in highly turbid water at the time of sampling. The turbidity in the surface water was caused by heavy machinery moving through Silver Creek and disturbing streambed material.

# 4.1.3 Sediment Sample Collection

Initially, the FIT proposed screening sediment samples using FASP XRF analysis for metal contaminant detection. However, during the sampling period the FIT XRF experienced operating problems and was not available to perform the analysis. The FIT opted to send a single sediment sample from each sample location to the CLP laboratory for sieving and analysis.

The FIT collected sediment samples in conjunction with each surface water sample. Each sediment sample was collected immediately following surface water sample collection. Each sample was collected using a plastic scoop or a decontaminated stainless steel spoon. The FIT composited each sediment sample on a plastic sheet prior to placing the sample in the appropriate sample container.

# 4.1.4 Opportunity Samples

After performing a site reconnaissance the FIT selected two locations for opportunity sample collection. Additional surface water samples (RFT-OPW-1A and RFT-OPW-1B) and a sediment sample (RFT-OSE-1) were collected at the base of the tailings dam from a ponded seep area topographically elevated above and disjunct from the marshy area. A second opportunity sediment sample (RFT-OSE-2) was collected from a small seep area located approximately 50 feet northeast of the ponded seep area, along the face of the tailings dam (Figure 3). Flow in this seep area was insufficient for surface water sample collection. Surface water sample RFT-OPW-1A was filtered prior to preservation with nitric acid to a pH <2.

#### 4.2 SAMPLE SHIPPING

Samples collected during this effort were shipped on July 20, 1989 to the following Contract Laboratory Program (CLP) laboratories for analysis. Samples of tailings and surface water were shipped as low hazard environmental samples to Keystone Environmental Resources in

Houston, Texas for total metals analysis under Regular Analytical Services case number 12334. However, due to contractual difficulties Keystone Environmental performed only mercury analysis on these samples. Under the direction of the Sample Management Office (SMO) these samples were shipped by Keystone Environmental to Silver Valley Laboratory in Kellogg, Idaho for the remainder of the analyses. Sediment samples were shipped to Silver Valley Laboratory in Kellogg, Idaho under Special Analytical Service case number 4725H. These samples were sieved in an 80 mesh sieve in order to remove large gravel and organic matter prior to analysis for total metals.

# 5.0 QUALITY CONTROL

The FIT closely adhered to quality control procedures during the sampling activity as described in the Sampling Plan and in SOP III-2, Chapter 6.

#### 5.1 INSTRUMENT CALIBRATION

Instruments utilized on this SI were calibrated by FIT members in the field. An Orion pH meter and a specific conductivity meter were calibrated daily and used at each surface water sample collection point. In addition, pH paper was used to determine tailings and sediment pH at each sample location. Surface water field data are presented in Table 1. Sediment and tailings field data are presented in Table 2 of this report. Daily instrument calibrations can be found in the Richardson Flat logbook (TDD F08-8903-06).

#### 5.2 SAMPLE CONTAINERS

All sample containers were obtained though the Sample Management Office (SMO) Bottle Repository. A rinsate blank was collected for each day of sampling and submitted to the Contract Laboratory Program (CLP) laboratory to assess quality control (quality assurance on equipment decontamination and field handling).

#### 5.3 BACKGROUND SAMPLES

The FIT collected background samples for both the Silver Creek and diversion ditch drainages. Upgradient surface water and sediment samples RFT-SW-1A, RFT-SW-1B and RFT-SE-1 were collected from the Pace Homer Ditch (an irrigation ditch which discharges into Silver Creek upgradient of the floodplain tailings area). Additional surface water and sediment samples RFT-SW/SE-16 and RFT-SW/SE-17 were collected on Silver Creek upgradient of the floodplain tailings. Samples RFT-SW/SE-16 and RFT-SW/SE-17 were collected downgradient from and upgradient of the confluence of the irrigation ditch with Silver Creek, respectively.

An upgradient surface water and sediment sample (RFT-SW/SE-4) was collected from the eastern end of the runoff diversion ditch which conveys runoff from the surrounding hills near the tailings pond (Figure 3).

#### 5.4 BLANK SAMPLES

The FIT prepared a total of three blanks for this sampling effort. RFT-SW-12A, RFT-SW-12B, RFT-SW-15A, RFT-SW-15B, RFT-SW-18A and RFT-SW-18B were field rinsate blanks (prepared to check decontamination of sampling equipment). Blank samples with an "A" designator were passed through the barrel filtering device.

#### 5.5 DUPLICATE SAMPLES

Samples RFT-SW-11A and RFT-SW-11B were collected as a duplicate of RFT-SW-2A and RFT-SW-2B. These samples provide verification of laboratory accuracy.

#### 5.6 DECONTAMINATION PROCEDURES

The FIT followed decontamination procedures as set forth in SOP III-2, Chapter 11 Equipment Decontamination Procedures. This procedure

involved the following steps: a tap water wash, soapy water wash, triple deionized water rinse and air drying.

### 5.7 DOCUMENTATION

Following sample collection, all samples were handled in strict accordance with chain of custody protocol prescribed by the NEIC Procedures Manual for the Evidence Audit of Enforcement Investigation by Contractor Evidence Audit Teams, April 1984 (EPA-330/9-81-003R).

Appendix A of this report includes the sample identification numbers, sample tag numbers, traffic report numbers and chain of custody numbers. Copies of traffic reports, chain of custody records and pertinent airbills are available in TDD file F08-8903-06. The Richardson Flat logbook has a complete record of all documentation information (TDD F08-8903-06).

#### 5.8 QUALITY ASSURANCE REVIEW

The inorganic data packages were examined thoroughly by FIT chemists for compliance using EPA Functional Guidelines for Reviewing Inorganic Data and the approved Region VIII FIT CLP Quality Assurance Standard Operating Procedures (SOP). The quality assurance reports and data sheets are attached as Appendix C. The data packages were judged acceptable overall, with qualifications as follows.

## 5.8.1 Sediment Samples

Spike recoveries were low for antimony and thallium indicating positive results for these elements are biased low and are flagged "j", estimated. Selenium recoveries were unacceptably low and positive values are flagged "j" and undetected values are rejected, "r". Thallium and selenium data were also flagged "j" for below criteria correlation in method of standard additions. Cadmium data were flagged "j", estimated, due to percent difference in serial dilution results.

# 5.8.2 Water And Tailings Samples

Samples were transferred from one CLP laboratory to another by the Sample Management Office. Recoveries for thallium and selenium were low and were flagged "[]" as estimated or "u" as undetected in surface water samples. Thallium results for tailings samples were flagged "j" or "[]" indicating the value is estimated due to minor quality control discrepancies, or the compound was detected below the contract required detection limit (CRDL). Lead results were flagged "j" due to duplicate results. Arsenic data were flagged "j", estimated data, due to poor correlation coefficients for RFT-SW-5A, RFT-SW-5B and RFT-SW-10B. Arsenic and zinc solid sample results were flagged "j" due to high serial dilution results. Field duplicates showed good relative agreement. Field blanks were free of contamination above contract detection limits except that arsenic in RFT-SW-12B was detected at 12 µg/1.

All arsenic and lead data are included in the discussion of analytical results in Section 6.1 and in Figures 4, 5 and 6 of this report. Refer to Tables 3, 4 and 5 for appropriate qualifications of data. Other analytical results discussed in Section 6.1 include those data which are not qualified and those data qualified as estimated or at a concentration greater than five times the quantity found in the blank.

# 6.0 RESULTS

Results of the supplemental site inspection are focused entirely on addressing issues associated with contaminant migration via the surface water route. Discussions of sample analytical data and field observations follow.

#### 6.1 ANALYTICAL RESULTS

Results of the inorganic analysis of samples collected at Richardson Flat Tailings and the surrounding area are shown in Tables 3, 4 and 5. The sampling locations and the concentrations of arsenic and lead at each sample location are depicted in Figures 3 through 6. Each figure gives relative concentrations of contaminants for each medium sampled (i.e. Figure 4 contains lead and arsenic concentrations for tailings samples. Figure 5 contains lead and arsenic concentrations for surface water samples. Figure 6 contains lead and arsenic concentrations for sediment samples).

The following is a discussion of analytical results for each medium sampled.

# 6.1.1 Tailings Samples

Three tailings samples collected from south and southeast of the diversion ditch showed fairly constant concentrations of lead and arsenic. In particular, arsenic concentrations in tailings samples were relatively constant at approximately 200 mg/kg while lead concentrations were slightly more variable (ranging from 2580 mg/kg to 4520 mg/kg). Notable concentrations of cadmium (ranging from 21.1 to 95.9 mg/kg), copper (ranging from 149 to 336 mg/kg), mercury (ranging from 0.88 to 1.3 mg/kg), silver (ranging from 12.6 to 22.1 mg/kg) and zinc (ranging from 3220 to 14,100 mg/kg) were detected in these tailings samples as well.

Samples collected from the floodplain tailings (RFT-TA-4 and RFT-TA-5) exhibited a higher degree of variability. Arsenic concentrations in sample RFT-TA-4 were 259 mg/kg while sample RFT-TA-5 had an arsenic concentration of 175 mg/kg. Lead concentrations were also highly variable with sample RFT-TA-5 containing 31,600 mg/kg of lead while RFT-TA-4 had a concentration of 9300 mg/kg. Concentrations of cadmium (117 and 250 mg/kg), mercury (8.2 and 7.6 mg/kg), silver (62.8 and 115 mg/kg) and zinc (16,200 and 33,800 mg/kg) were notably higher in the floodplain tailings than in tailings samples collected south of the diversion ditch.

#### 6.1.2 Surface Water Samples

Surface water samples were collected to assess the relationship of the site to contaminant distribution in Silver Creek and in the diversion ditch. For each surface water sample location, both a filtered sample and an unfiltered sample were submitted for analysis. As anticipated, the unfiltered surface water samples showed higher levels of contamination indicating a majority of the contaminants exist as suspended solids. The filtered and the unfiltered surface water samples exhibit similar trends in relative contaminant magnitude and in specific contaminants detected (Table 5). The following discussion focuses on results of unfiltered surface water samples. Figure 5 illustrates relative lead and arsenic concentrations in unfiltered surface water samples.

Background concentrations of metals in Silver Creek and the Pace Homer Ditch upgradient of their confluence were relatively low. Specifically, RFT-SW-1B in the Pace Homer Ditch had 0.93  $\mu$ g/l of lead and 7.7  $\mu$ g/l of arsenic. Sample RFT-SW-17B, collected from Silver Creek upgradient of the Pace Homer confluence, contained 0.9  $\mu$ g/l of lead and 2.3  $\mu$ g/l of arsenic. Background surface water sample RFT-SW-16B, collected from Silver Creek downgradient from the Pace Homer confluence contained 25.2  $\mu$ g/l of lead and 5.6  $\mu$ g/l of arsenic.

Surface water samples collected from Silver Creek in the vicinity of the floodplain tailings contained very high concentrations of lead and arsenic. Analytical results of RFT-SW-2B indicated the presence of lead at 20,000 µg/l and arsenic at 619 µg/l. Sample RFT-SW-3B contained 1100 µg/l of lead and 41.9 µg/l of arsenic. Also notable in sample RFT-SW-2B were high levels of cadmium (137 µg/l), chromium (72.2 µg/l), copper (1390 µg/l), mercury (11.50 µg/l), silver (131 µg/l) and zinc (19,300 µg/l). Further downstream as Silver Creek meanders through the marshy area, data from sample RFT-SW-8B indicated reduced concentrations of lead (36.6 µg/l) and arsenic (8.4 µg/l). Sample RFT-SW-9B, collected from Silver Creek on the south side of the U.S. Route 40 culvert contained 122 µg/l of lead and 12.2 µg/l of arsenic. Concentrations of

lead (35.8  $\mu$ g/l) in RFT-SW-10B drop as the course of Silver Creek moves further from the site.

The background diversion ditch sample (RFT-SW-4B), collected near the point of origin of that drainage was highly contaminated. Lead was detected at 22,100  $\mu$ g/l and arsenic was detected at 2326  $\mu$ g/l. High concentrations of cadmium (289  $\mu$ g/l), chromium (50.2  $\mu$ g/l), copper (1540  $\mu$ g/l), mercury (8.0  $\mu$ g/l), silver (201  $\mu$ g/l) and zinc (49,100  $\mu$ g/l) were also detected in RFT-SW-4B.

Sample RFT-SW-5B, collected from the diversion ditch midway through the tailings contained 24.9  $\mu g/l$  of lead and 17.4  $\mu g/l$  of arsenic. Surface water collected from the point at which the diversion ditch enters the marshy area (RFT-SW-6B) contained greatly reduced concentrations of lead (1.9  $\mu g/l$ ) and arsenic (3.9  $\mu g/l$ ). RFT-SW-7B, collected in the center of the marshy area, contained 131  $\mu g/l$  of lead and 9.4  $\mu g/l$  of arsenic.

Opportunity surface water sample RFT-OPW-1B, collected from a seep area at the base of the tailings embankment contained 68.2  $\mu$ g/l of lead, 33.1  $\mu$ g/l of arsenic and 759  $\mu$ g/l of zinc. Mercury was not detected in this sample.

#### 6.1.3 Sediment Samples

Sediment samples were collected from all surface water sampling locations throughout the study area. Two additional sediment samples (RFT-OSE-1 and RFT-OSE-2) were collected from seep areas at the toe of the tailings embankment. Flow in the area of RFT-OSE-2 was minimal at the time of sampling, precluding collection of a corresponding surface water sample. Analytical results of sediment samples are presented in Table 4. Figure 6 illustrates relative lead and arsenic concentrations in sediment samples.

Analytical results of background sediments collected from the Pace Homer Ditch and Silver Creek indicated the presence of elevated concentrations of arsenic and lead upgradient of the influence of the floodplain tailings and the impoundment. Sample RFT-SE-1, collected in the Pace Homer Ditch, contained 1790 mg/kg of lead and 83.2 mg/kg of arsenic. Sediment sample RFT-SE-17, collected from Silver Creek upgradient of the Pace Homer Ditch confluence, contained 12,200 mg/kg of lead and 555 mg/kg of arsenic. Also notable in RFT-SE-17 were relatively high concentrations of cadmium (113 mg/kg), silver (39.8 mg/kg) and zinc (17,500 mg/kg). Sample RFT-SE-16, collected downgradient from the Pace Homer Ditch confluence contained 4430 mg/kg of lead and 211 mg/kg of arsenic.

Sediment samples collected in close proximity to the floodplain tailings (RFT-SE-2 and RFT-SE-3) contained high levels of arsenic (590 and 427 mg/kg), cadmium (91.4 and 82.0 mg/kg), lead (14,200 and 9880 mg/kg) and mercury (4.9 and 6.0 mg/kg).

Sediment sample RFT-SE-8, collected from Silver Creek within the marshy area contained 348 mg/kg arsenic, 82.3 mg/kg cadmium and 3510 mg/kg lead. Analytical data for Silver Creek sediment sample RFT-SE-9, collected at the U.S. Route 40 culvert, indicated contaminants present in the following concentrations: 295 mg/kg arsenic, 90.2 mg/kg cadmium, 6970 mg/kg lead and 5.0 mg/kg mercury. Concentrations of all contaminants including arsenic (5.4 mg/kg) and lead (108 mg/kg) were significantly reduced in sediment sample RFT-SE-10, collected from Silver Creek a few hundred feet downstream from the U.S. Route 40 culvert.

The background diversion ditch sediment sample (RFT-SE-4 was significantly contaminated with arsenic (776 mg/kg), cadmium (100 mg/kg), lead (13,600 mg/kg) and mercury (5.5 mg/kg). Arsenic, lead and mercury data for sediments collected from the diversion ditch midway through the tailings (RFT-SE-5) and at the point of discharge to the marshy area (RFT-SE-6) indicate a reduction in concentrations of these elements as compared to sample RFT-SE-4. Cadmium concentrations were not reduced, however, as RFT-SE-5 contained 149 mg/kg and RFT-SE-6 contained 62.3 mg/kg. Sample RFT-SE-7, collected in the center of the

marshy area, contained 198 mg/kg arsenic, 102 mg/kg cadmium and 3250 mg/kg lead.

Opportunity sediment samples were collected from two separate seep areas discovered during site reconnaissance. Sample RFT-OSE-1, collected from a ponded area at the base of the embankment, exhibited significant concentrations of arsenic (751 mg/kg), cadmium (185 mg/kg), lead (12,500 mg/kg), silver (60.6 mg/kg) and zinc (24,000 mg/kg). Sample RFT-OSE-2, obtained from a seep area along the face of the embankment, contained 839 mg/kg of arsenic, 131 mg/kg cadmium, 6900 mg/kg of lead and 20,000 mg/kg of zinc.

#### 6.2 FIELD OBSERVATIONS

Discussed below are field observations made by the FIT during the July 1989 sampling effort, during a previous site visit in March 1989 and during a personal interview with a local rancher conducted in December 1989.

## 6.2.1 Source Data

Tailings material present on the south side of the diversion ditch was virtually indistinguishable in appearance from tailings material within the "impoundment". Tailings on both sides of the ditch were noted as light gray in color as shown in Photo 1 (Appendix B).

Floodplain tailings exhibited a different appearance than the impoundment tailings and the tailings located south of the diversion ditch. The floodplain tailings were noted as more orange in color (Photos 5 and 6, Appendix B), indicative of iron oxidation. The pH measurements of floodplain tailings samples RFT-TA-4 and RFT-TA-5 indicated highly acidic surface conditions (pH 2).

# 6.2.2 Pathway Data

No effective barrier to erosional transport of tailings material into the diversion ditch was observed. The ditch appeared to have been constructed through deposited tailings.

Although the diversion ditch contained standing water along much of its course, it may be an overland conduit of contamination from the tailings into the Silver Creek drainage during events of high precipitation. The diversion ditch terminates in the marshy area as depicted in Figure 7.

Floodplain tailings were noted as highly susceptible to erosional transport into Silver Creek, with no visible containment structure present.

Due to heavy construction activities upstream, Silver Creek was notably turbid along its course where RFT-SW-2 and RFT-SW-3 were collected. Turbidity may have contributed to excessive contaminant concentrations detected in these surface water samples.

After a thorough reconnaissance, two seep areas were located along the tailings embankment. One seep was found in an isolated pond area at the base of the embankment. The second seep area was located approximately 50 feet north of the pond area along the face of the embankment. Opportunity sediment samples were collected from both seep locations and an opportunity surface water sample was collected from the ponded area.

The facility has an average slope of less than three percent. The intervening terrain between seep samples RFT-OPW-1/RFT-OSE-1 and the marshy area was observed to be between three to five percent. The intervening terrain between seep samples RFT-OSE-2 and the marshy area was observed to be between five to eight percent.

The likely course that runoff can be expected to follow from seep areas to the marshy area is depicted on Figure 7. The distance from the RFT-OPW-1/RFT-OSE-1 sample location (ponded seep area) to the marshy area was approximately 150 feet at the time of sampling. The distance from the RFT-OSE-2 sample location to the marshy area was approximately 200 feet at the time of sampling.

## 6.2.3 Target Data

Probable points of entry of seep contaminants into a surface water body (i.e. the marshy area) are illustrated on Figure 7. The distance measured across the marshy area from the nearest probable point of entry to Silver Creek at the U.S. Route 40 culvert is approximately 325 feet.

The nearest point of diversion of surface water from Silver Creek downgradient of the site is the G.M. Pace Ditch, used to irrigate alfalfa fields and pasture. The point at which the G.M. Pace Ditch diverts water from Silver Creek was measured as 2340 feet from the U.S. Route 40 culvert along the course of Silver Creek.

Mr. Standley Pace, in an interview conducted by FIT member Kevin Mackey in December 1989, stated that he currently irrigates about 115 acres of cow pasture and alfalfa fields with water from the G.M. Pace Ditch. Mr. Pace's cousin irrigates an additional 115 acres for similar purposes using water diverted by the G.M. Pace Ditch. Another local rancher, Mr. James Gilmore, was identified by Mr. Pace as a user of the ditch.

Mr. Gilmore stated during a December 1989 telephone conversation that he currently irrigates between 95 and 110 acres of alfalfa fields and sheep pasture using water from the G.M. Pace Ditch. Records of communication with Mr. Pace and Mr. Gilmore are provided in Appendix D.

# 7.0 CONCLUSIONS

Objectives of the supplemental site inspection for Richardson Flat Tailings have been accomplished as a result of follow-up sampling and field activities.

#### 7.1 SURFACE HYDROLOGY

Surface water drainage patterns throughout the site area have been defined. The diversion ditch, which originates on the hill near the southeastern extension of the impounded tailings, cuts through tailings material throughout most of its course and terminates in the marshy area at the base of the tailings embankment (Figure 3).

Silver Creek flows parallel to the Union Pacific Railroad tracks for most of its course between the east/west access road and U.S. Route 40. About 250 feet south of U.S. Route 40, Silver Creek flows beneath the Union Pacific Railroad trestle where it meanders through a portion of the marshy area near the base of the tailings embankment. Silver Creek flows beneath U.S. Route 40 via a culvert, then flows in a northwest direction into the Weber River drainage (Figures 1 and 3).

The likely courses of runoff from seep locations into the marshy area are depicted on Figure 7.

## 7.2 OBSERVED RELEASE

Analytical results of surface water and sediment samples collected from Silver Creek and the diversion ditch do not support an observed release of contaminants to surface water. The significant contribution of contaminants to Silver Creek by the floodplain tailings and historic deposition of metal-bearing material into the streambed cannot be clearly segregated from contamination contributed by the Richardson Flat tailings.

The upgradient diversion ditch surface water and sediment samples (RFT-SW-4 and RFT-SE-4) revealed higher contaminant levels than did diversion ditch samples midway though the tailings (RFT-SW-5 and RFT-SE-5) and at the point of outflow (RFT-SW-6 and RFT-SE-6). Lower contaminant concentrations in RFT-SW-5, RFT-SE-5, RFT-SW-6 and RFT-SE-6 may result from high percentages of organic matter at these sample locations. Inability to establish clear trends of contaminant distribution in both the diversion ditch and Silver Creek drainages is probably due in part to the non-homogenous nature of tailings material deposited.

#### 7.3 SOURCES

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Source material analyzed during the course of the original site inspection and the supplemental activities include tailings within the impoundment, tailings on the south side of the diversion ditch and tailings adjacent to Silver Creek (referred to in this report as floodplain tailings). All tailings samples collected contained high concentrations of inorganic contaminants. Elemental concentrations and near neutral pH measurements of tailings samples RFT-TA-1, RFT-TA-2 and RFT-TA-3 (south side of diversion ditch) correspond closely with data for tailings samples collected from the impounded area during the original site inspection (Ecology and Environment, Inc. 1985). High concentrations of arsenic, cadmium, copper, lead, mercury, silver and zinc are associated with tailings deposited on Richarson Flat regardless of proximity to the diversion ditch.

Presence of arsenic, cadmium, lead, silver and zinc contamination in seep water and sediment samples indicate a loss of integrity in the tailings impoundment control structure. It is possible that tailings were mixed with native soil during construction of the earthen embankment, contributing to contamination of seep samples.

Analytical results of floodplain tailings indicated notably higher concentrations of cadmium, lead, mercury and zinc as compared to tailings collected from the impoundment and from the south side of the

es collected from
lings contained high
collected from Silver sources of inorganic
U.S. Route 40 culvert
seep sediment sample
minants into surface
course of runoff. The
of entry to Silver
y 325 feet. The total
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the course of surface
==
= diverted from Silver
30 (Standly Pace, 115
===cres).
ts attributable to the
mination is prevalent
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diversion ditch. Surface water and sediment samples collected from Silver Creek in the vicinity of the floodplain tailings contained high levels of corresponding contaminants.

Background surface water and sediment samples collected from Silver Creek and the Pace Homer Ditch indicated additional sources of inorganic contamination upgradient of sources discussed in this report.

#### 7.4 SURFACE WATER DIVERSION

The distance to the G.M. Pace Ditch from the U.S. Route 40 culvert was measured in the field and was reported as 2340 feet along the course of Silver Creek. The distance from contaminated seep sediment sample RFT-OSE-2 to the probable point of entry of contaminants into surface water is approximately 200 feet along the likely course of runoff. The distance across the marsh from the probable point of entry to Silver Creek at the U.S. Route 40 culvert is approximately 325 feet. The total distance from contamination to the nearest diversion of water from Silver Creek is therefore 2865 feet measured along the course of surface water flow.

The total number of acres irrigated by water diverted from Silver Creek via the G.M. Pace Ditch was documented as 330 (Standly Pace, 115 acres; Angus Pace 115 acres; James Gilmore, 100 acres).

#### 7.5 SUMMARY

In summary, no observed release of contaminants attributable to the site has been clearly documented. Inorganic contamination is prevalent throughout the study area and additional sources of contamination other than those discussed in this report may exist.

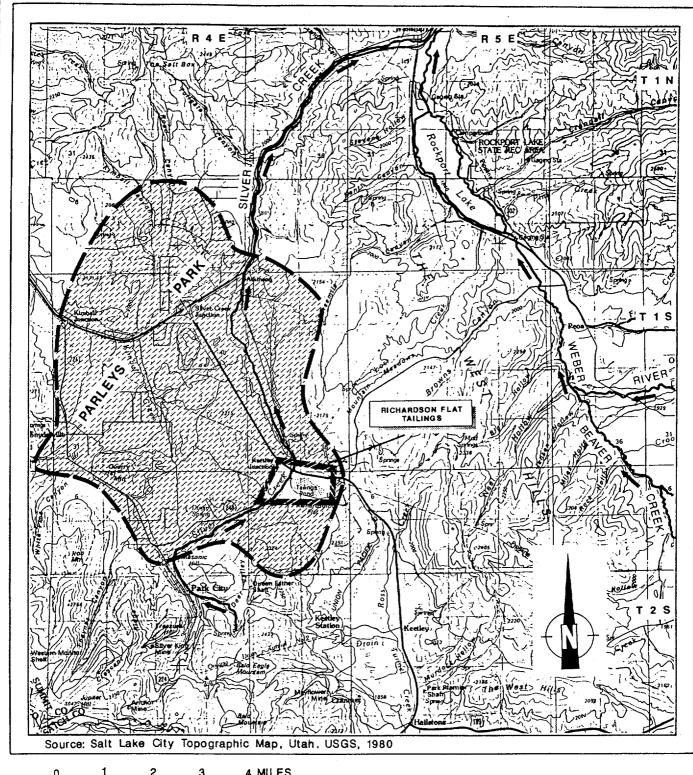
Contaminated water and sediment samples collected at seep locations on the tailings embankment, however, demonstrate the diking is leaking and unsound. Contamination attributable to Richardson Flat tailings poses a potential threat to surface water in Silver Creek.

Within three miles downstream of documented contamination attributable to Richardson Flat Tailings, water is diverted by the G.M. Pace Ditch for crops and pasture irrigation of approximately 330 acres of land.

## 8.0 REFERENCES

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- U.S. Department of Commerce, 1963, Rainfall Frequency Atlas of the United States, Technical Paper No. 40.
- USEPA Contract Laboratory Program, July, 1987, Statement of Work, No. 787 for Inorganics Analysis; Multimedia, Multiconcentration.
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4 MILES

FIELD INVESTIGATIONS OF UNCONTROLLED HAZARDOUS WASTE SITES TASK REPORT TO THE E.P.A.

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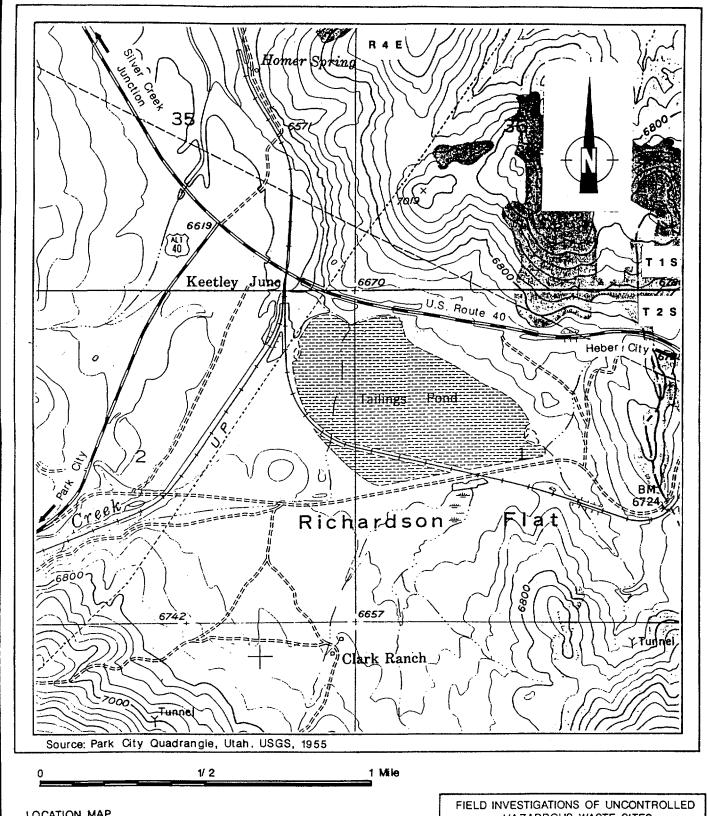
RICHARDSON FLAT TAILINGS Park City, Utah SITE LOCATION MAP

FIG. 1

T.D.D. F08-8903-06

ecology & environment, inc. DENVER, COLORADO

Date: 12/89 Drawn by: RSM Scale:







HAZARDOUS WASTE SITES TASK REPORT TO THE E.P.A.

TITLE:

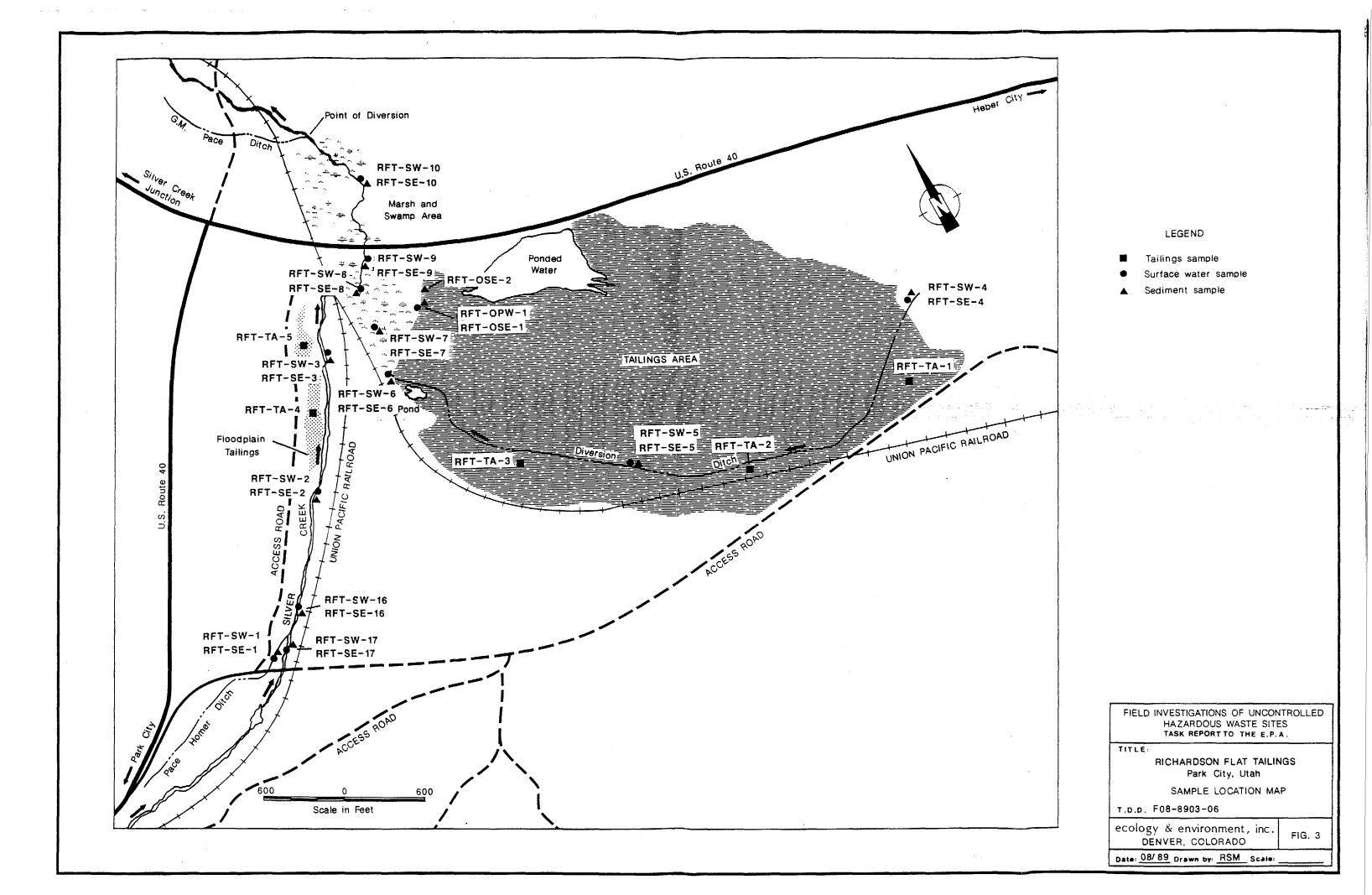
RICHARDSON FLAT TAILINGS Park City, Utah DETAILED SITE LOCATION MAP

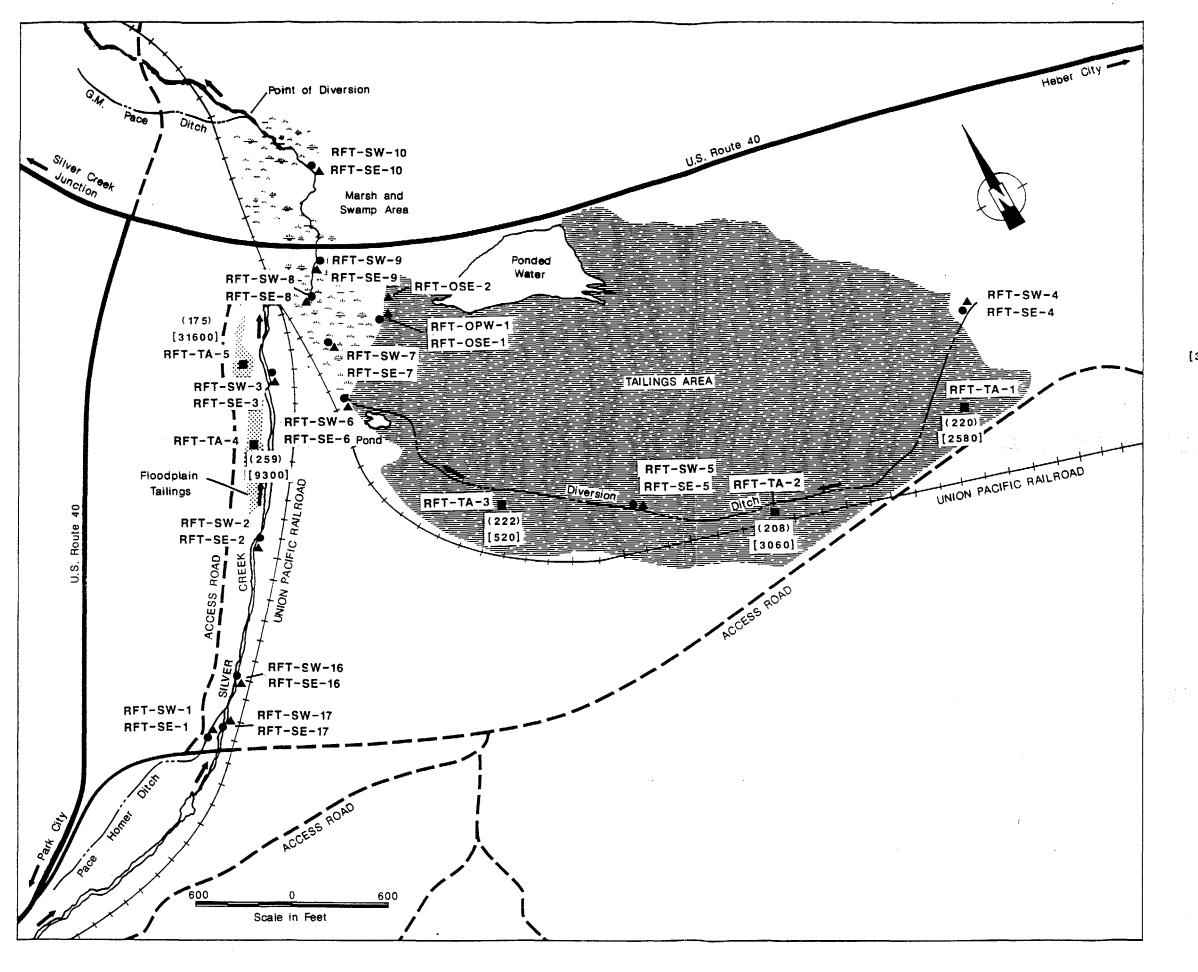
T.D.D. F08-8903-06

ecology & environment, inc. DENVER, COLORADO

FIG. 2

Date: 06/89 Drawn by: RSM Scale:





#### LEGEND

- Tailings sample
- Surface water sample
- Sediment sample

(259) Arsenic concentration (mg/kg)

[31600] Lead concetration (mg/kg)

FIELD INVESTIGATIONS OF UNCONTROLLED HAZARDOUS WASTE SITES TASK REPORT TO THE E.P.A.

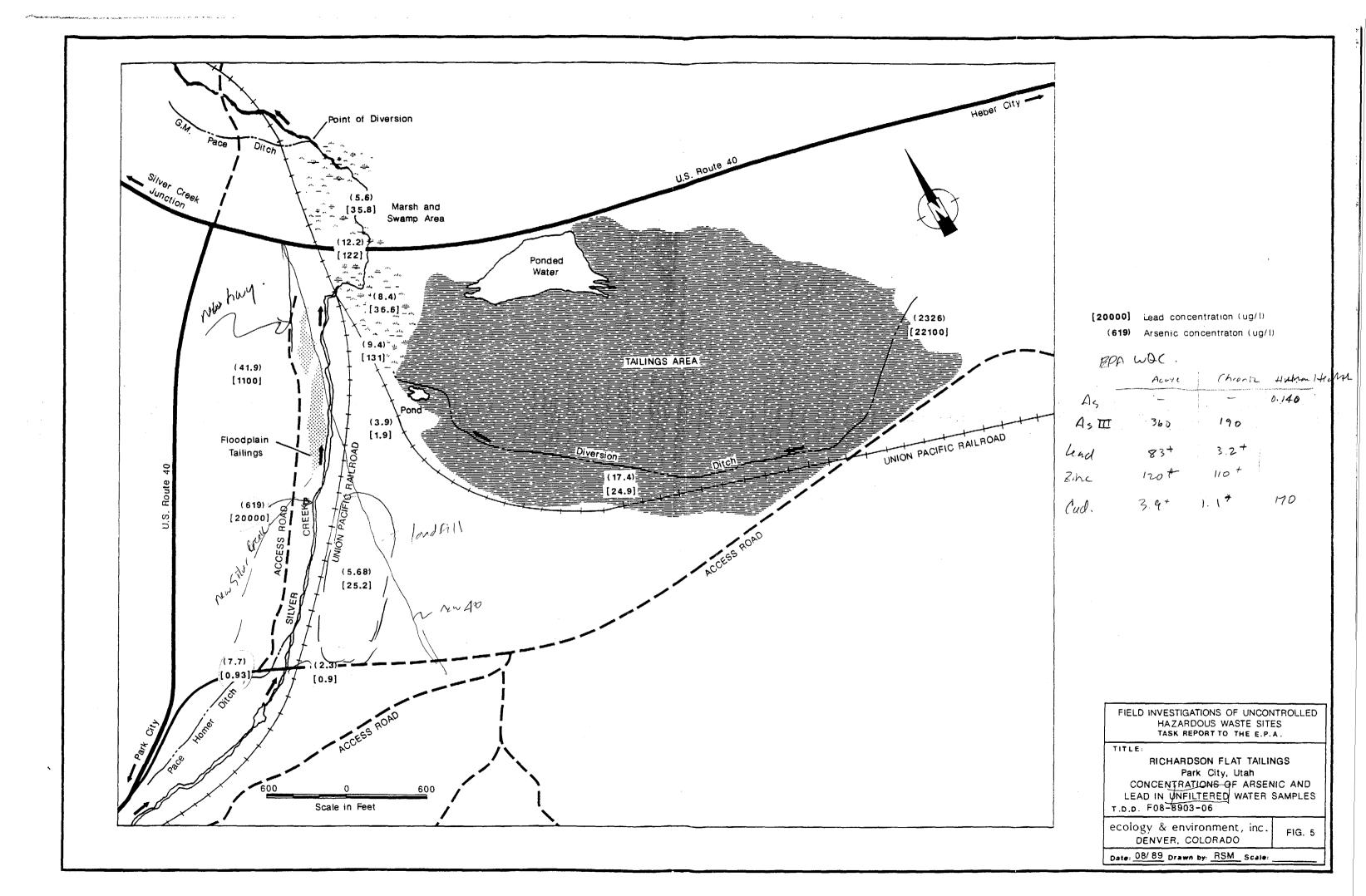
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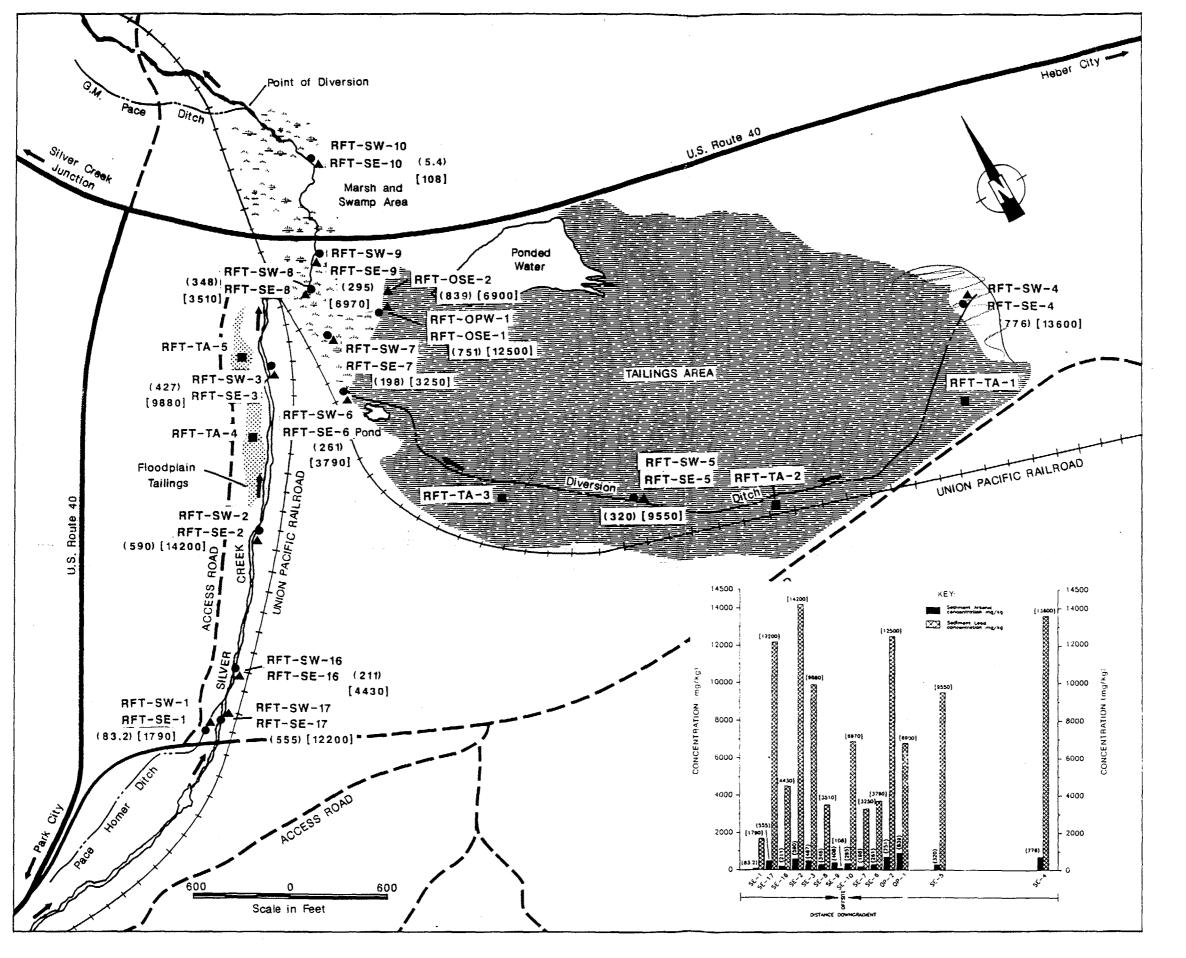
RICHARDSON FLAT TAILINGS
Park City, Utah
CONCENTRATIONS OF ARSENIC
AND LEAD IN TAILINGS SAMPLES
T.D.D. F08-8903-06

ecology & environment, inc.
DENVER, COLORADO

Date: 08/89 Drawn by: RSM Scale:

FIG. 4





# LEGEND

- Tailings sample
- Surface water sample
- Sediment sample
- Sediment Arsenic (839) concentrations mg/kg
- [14200] Sediment Lead concentrations mg/kg

FIELD INVESTIGATIONS OF UNCONTROLLED HAZARDOUS WASTE SITES

TITLE:

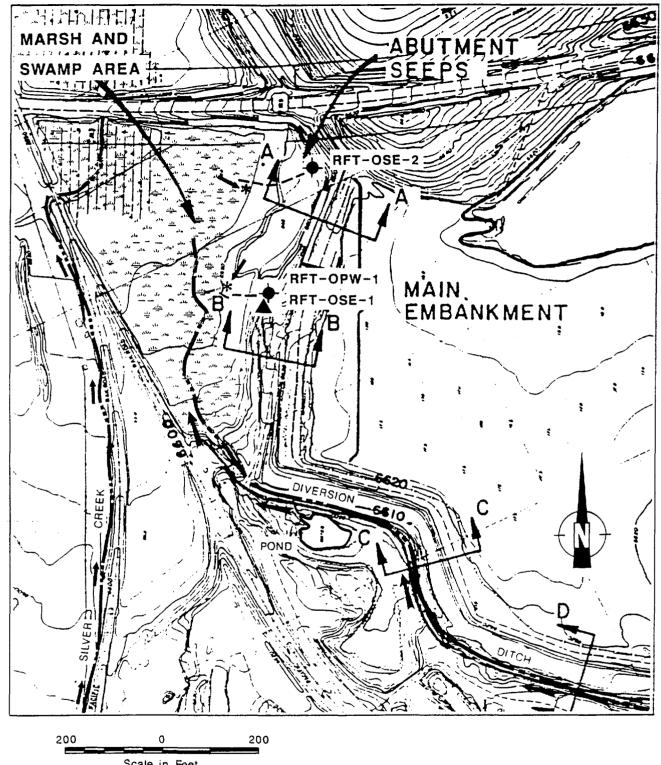
RICHARDSON FLAT TAILINGS Park City, Utah

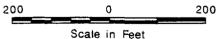
CONCENTRATIONS OF ARSENIC AND LEAD IN SEDIMENT SAMPLES

FIG. 6

ecology & environment, inc. DENVER, COLORADO

Date: 08/89 Drawn by: RSM Scale:





#### LEGEND

Opportunity water sample

Sediment sample Likely course of runoff

Probable point of entry

Source: Dames & Moore Aerial Photograph Plot Plan, August 24, 1980.

FIELD INVESTIGATIONS OF UNCONTROLLED HAZARDOUS WASTE SITES TASK REPORT TO THE E.P.A.

TITLE:

RICHARDSON FLAT TAILINGS Park City, Utah SURFACE HYDROLOGY MAP

T.D.D. F08-8903-06

ecology & environment, inc. DENVER, COLORADO

Date: 12/89 Drawn by: RSM Scale:

FIG. 7

PIELD  $\mathbf{F}\mathbf{1}_{\pm}$ pH **7.**3 7.5 7.0 7.0% 6.8 6.01 6.61 7.7%

8.08

7.51

TABLE 2 SOIL AND SEDIMENT FIELD DATA SITE Richardson Flat Tailings

SAMPLE ID	8.4 M	#AMPLING		COMMENTS		
SAMPLE ID	DATE	TIME	SHIPPING DATE			
RFT-SE-1	07/19/89	1107 -	07/20/89	Dark brown material, some organic matter present		
RFT-SE-2	07/19/89	1040	07/20/89	Light gray medium to fine grained sediment		
RFT-SÉ-3	07/19/89	1016	07/20/89	Light gray medium to fine grained sediment		
RFT-SE-4	07/19/89	0925	07/20/89	Dark brown to medium gray, fine grained sediment		
RFT-SE-5	07/19/89	0900	07/20/89	Gray with rust color		
RFT-SE-6	07/19/89	0835	07/20/89	Light gray, medium to coarse grained sediment		
RFT-SE-7	07/18/89	1700	07/20/89	Dark brown sediment high in organic matter		
RFT-SE-8	07/18/89	1640	07/20/89	Dark brown sediment high in organic matter		
RFT-SE-9	07/18/89	1351	07/20/89	Medium gray fine grained sediment, some organic matter present		
RFT-SE-10	07/18/89	1524	07/20/89	Dark brown silty clay (fine grained)		
RFT-SE-16	07/20/89	1025	07/20/89	Medium gray, fine to coarse grained sediment		
RFT-SE-17	07/20/89	1040	07/20/89	Medium gray, fine to coarse grained sediments		
RFT-TA-1	07/18/89	1115	07/20/89	Tan or rust colored, fine sand or tailings; pH 6.5		
RFT-TA-2	07/18/89	1125	07/20/89	Tan colored, fine sand or tailings; pH 6		

# TABLE 3 INORGANIC ANALYTICAL RESULTS FOR TAILINGS SAMPLES (mg/kg) RICHARDSON FLAT TAILINGS SUMMIT COUNTY, UTAH TDD F08-8903-06 - PAN FUT0039HDA

SAMPLE # TRAFFIC RPT # SAMPLE LOCATION	RFT-TA-1 MHL-955 EAST OF TAILINGS POND	RFT-TA-2 MHL-956 MIDDLE OF TAILINGS POND	RFT-TA-3 MHP-500 WEST OF TAILINGS POND	RFT-TA-4 MHP-501 FLOOD PLAIN TAILINGS	RFT-TA-5 MHP-502 FLOOD PLAIN TAILINGS
Aluminum	691	1040	1530	1030	240
Antimony	63.1	84.4	87.0	120	144
Arsenic	220j	208j	222j	259 <b>j</b>	175j
Barium	153	86.9	[32.8]	117	[39.5]
Beryllium	0.22u	0.22u	0.22u	0.27u	0.23u
Cadmium	21.1	41.2	95.9	117	250
Calcium	37000	54500	68200	5400	32800 -
Chromium	[2.0]	6.0	8.8	0.69u	0.59u
Cobalt	[5.5]	[2.6]	[7.4]	[3.9]	[3.2]
Copper	149	205	336	281	265
Iron	44700	36500	53400	97400	87000
Lead	2580	3060	4520	9300 -	31600
Magnesium	11200	18500	23000	[1140]	[142]
Manganese	1440	1740	2320	212	252
Mercury *	0.99	1.3	0.88	8.20	7.60
Nickel	8.2	9.4	[7.1]	[5.1]	[6.2]
Potassium	[255]	[496]	[827]	[1140]	[680]
Selenium	23.6	12.7	19.2	45.7	38.4
Silver	12.6	18.5	22.1	62.8	115
Sodium	[22.4]	[34.8]	[42.6]	[603]	[117]
Thallium	6.6j	3.0j	[4.2]j	[9.7]j	[6.8]j
Vanadium	[1.3]	[3.8]	[3.7]	[2.6]	0.57u
Zinc	3220	5710	14100	16200	33800

- \* Results have been provided by Keystone Laboratory of Houston, Texas. The remaining results are from analyses conducted by Silver Valley Laboratories of Kellog, Idaho.
- j The associated numerical value is an estimated quantity because the amount detected is below the contract required detection limit (CRDL) or because minor quality control criteria were not met. Presence of the material is reliable.
- u The material was analyzed for, but was not detected. The associated numerical value is the estimated sample quantitation limit or CRDL.
- [] The associated numerical value is an estimated quantity because the amount detected is below the contract required detection limit (CRDL). Presence of the material is reliable. (Inorganic data only).

# TABLE 4 INORGANIC ANALYTICAL RESULTS FOR SEDIMENT SAMPLES (mg/kg) RICHARDSON FLAT TAILINGS SUMMIT COUNTY, UTAH TDD F08-8903-06 - PAN FUT0039HDA

SAMPLE # PACKING LIST # SAMPLE LOCATION	RFT-SE-1 4725H-01 BCKGRND PACE HOMER DITCH	RFT-SE-2 4725H-O2 SILVER CRK NEAR FLOOD PLAIN TLGS	- · · · · · · · · · · · · · · · · · · ·		RFT-SE-5 4725H-O5 DIVERSION DITCH
Aluminum	18400	8620	7650	25100	2810
Antimony	19.8j	201j	114j	200j	178j
Arsenic	83.2	590	427	776	320
Barium	270	147	130	1220	134
Beryllium	1.7	[.86]	[.81]	[1.9]	[.47]
Cadmium	14.6j	91.4j	82.0j	100j .	149j
Calcium	15000	25600	2610	82100	89700
Chromium	21.9	.77u	[1.0]	33.2	10.9
Cobalt	[11.4]	43.5	38.5	[10.1]	[5.3]
Copper	239	753	459	840	613
Iron	30800	181000	148000	58600	44800
Lead	1790	14200	9880	13600	9550
Magnesium	6130	9430	8480	33800	19700
Manganese	1260	1730	1630	2770	3090
Mercury	1.0	4.9	6.0	5.5	1.5
Nickel	23.5	21.5	28.8	27.0	[2.9]
Potassium	3160	[1160]	[1150]	6270	[794]
Selenium	3.1j	46.2j	42.7j	15.4j	16.1jr
Silver	9.7	47.5	30.3	86.0	60.9
Sodium	[239]	[181]	[173]	[447]	[84.6]
Thallium	[.81]j	[3.6]j	4.1j	23.2j	12.7j
Vanadium	48.7	19.0	21.2	46.5	[8.6]
Zinc	2770	15500	15100	15700	26400

j - The associated numerical value is an estimated quantity because the amount detected is below the contract required detection limit (CRDL) or because minor quality control criteria were not met. Presence of the material is reliable.

r - Quality control indicates that data is <u>not</u> usable (material may or may not be present). **DO NOT USE THIS DATA!.** 

u - The material was analyzed for, but was not detected. The associated numerical value is the estimated sample quantitation limit or CRDL.

<sup>[] -</sup> The associated numerical value is an estimated quantity because the amount detected is below the contract required detection limit (CRDL). Presence of the material is reliable. (Inorganic data only).

### TABLE 4 CONT. INORGANIC ANALYTICAL RESULTS FOR SEDIMENT SAMPLES (mg/kg) RICHARDSON FLAT TAILINGS SUMMIT COUNTY, UTAH TDD F08-8903-06 - PAN FUT0039HDA

SAMPLE # PACKING LIST # SAMPLE LOCATION	RFT-SE-6 4725H-06 OUT FLOW POINT FOR DIVERSION DITCH	RFT-SE-7 4725H-07 MARSHY AREA	RFT-SE-8 4725H-08 SILVER CRK DRAINAGE IN MARSH AREA	RFT-SE-9 4725H-09 SILVER CRK CULVERT NEAR ROUTE 40	RFT-SE-10 4725H-10 DNGRDNT SILVER CRK 800' UPSTRM G.M. PACE DITCH
Aluminum	11100	9710	14000	10900	20200
Antimony	40.8	37.6j	80.5j	107j	10.1uj
Arsenic	261j	198	348	295	5.4
Barium	944	384	286	229	408
Beryllium	[.85]	[1.1]	[1.5]	[1.4]	1.6
Cadmium	62.3j	102j	82.3j	90.2j	2.2j
Calcium	46900	90700	85800	38700	9640
Chromium	.71u	9.9	16.5	16.3	18.5
Cobalt	64.4	20.4	33.3	20.1	[10.9]
Copper	256	264	567	498	40.7
Iron	41400	64900	49200	68700	25500
Lead	3790	3250	3510	6970	108
Magnesium	13300	20700	18400	11100	6360
Manganese	207000	19100	14300	3070	303
Mercury	0.24	0.82	1.1	5.0	[.10]
Nickel	69.7	14.0	25.8	16.3	17.0
Potassium	1870	1880	2400	1590	6050
Selenium	5.6j 13.7	9.2j	13.2j	21.9j	5.6ur
Silver	[344]	23.9	36.9	36.2	.41u
Sodium Thallium	•	[254]	[276]	[220]	[389]
Vanadium	8.5j 34.8	10.1j 20.5	14.2j 26.9	4.1j 31.2	.23uj 37.7
Zinc	18800	17600	18300	15900	302
		1,000	2000	12700	J

- j The associated numerical value is an estimated quantity because the amount detected is below the contract required detection limit (CRDL) or because minor quality control criteria were not met. Presence of the material is reliable.
- r Quality control indicates that data is <u>not</u> usable (material may or may not be present). <u>DO NOT USE THIS DATA!</u>.
- u The material was analyzed for, but was not detected. The associated numerical value is the estimated sample quantitation limit or CRDL.
- [] The associated numerical value is an estimated quantity because the amount detected is below the contract required detection limit (CRDL). Presence of the material is reliable. (Inorganic data only).

# TABLE 4 CONT. ANALYTICAL RESULTS FOR INORGANIC SEDIMENT SAMPLES (mg/kg) RICHARDSON FLAT TAILINGS SUMMIT COUNTY, UTAH TDD F08-8903-06 - PAN FUT0039HDA

SAMPLE # PACKING LIST # SAMPLE LOCATION	RFT-OSE-1 4725H-11 OPPORTUNITY POND SEDIMENT SAMPLE	RFT-OSE-2 4725H-12 OPPORTUNITY SEEP SEDIMENT SAMPLE	RFT-SE-16 4725H-13 DNSTRM OF PACE HOMER DITCH CONFLUENCE W/SILVER CRK	RFT-SE-17 4725H-14 UPGRDNT CONFLUENCE SILVER CRK & PACE HOMER DITCH
Aluminum	19500	6880	15200	4440
Antimony	142j	49.3j	53.9j	183j
Arsenic	751	839	211	555
Barium	668	557	209	66.0
Beryllium	[2.3]	[1.6]	[1.4]	[.63]
Cadmium	185j	131j	43.9j	113j
Calcium	249000	167000	14500	18900
Chromium	18.2	1.0u	11.8	.72u
Cobalt	[5.9]	53.3	24.6	76.8
Copper	870	456	231	496
Iron	156000	132000	86100	263000
Lead	12500	6900	4430	12200
Magnesium	29700	23400	6340	5880
Manganese	19600	23700	1560	1370
Mercury	1.9	.73	3.3	.81
Nickel	32.1	26.3	22.4	31.4
Potassium	4790	1690	2490	[657]
Selenium	19.9j	2.5j	25.1j	84.0j
Silver	60.6	22.5	15.5	39.8
Sodium	[764]	[206]	[215]	[105]
Thallium	24.1j	21.0j	1.2bj	6.0j
Vanadium	38.0	[18.6]	40.5	[10.4]
Zinc	24000	20000	8580	17500

j - The associated numerical value is an estimated quantity because the amount detected is below the contract required detection limit (CRDL) or because minor quality control criteria were not met. Presence of the material is reliable.

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u - The material was analyzed for, but was not detected. The associated numerical value is the estimated sample quantitation limit or CRDL.

<sup>[] -</sup> The associated numerical value is an estimated quantity because the amount detected is below the contract required detection limit (CRDL). Presence of the material is reliable. (Inorganic data only).

# TABLE 5 ANALYTICAL RESULTS FOR INORGANIC SURFACE WATER SAMPLES (µg/1) RICHARDSON FLAT TAILINGS SUMMIT COUNTY, UTAH TDD F08-8903-06 - PAN FUT0039HDA

SAMPLE # TRAFFIC RPT # SAMPLE LOCATION	RFT-SW-1A MHP-525 BCKGRND PACE HOMER DITCH	RFT-SW-1B MHP-526 BCKGRND PACE HOMER DITCH	RFT-SW-2A MHP-523 SILVER CRK NEAR FLOOD PLAIN TLGS	RFT-SW-2B MHP-524 SILVER CRK NEAR FLOOD PLAIN TLGS	RFT-SW-3A MHP-521 SILVER CRK NEAR FLOOD PLAIN TLGS
Aluminum	[27.9]ub	[26.3]ub	[18.2]ub	44500b	[16.5]ub
Antimony	19.9u	19.9u	[25.7]ub	210b	19.9u
Arsenic	[7.2]	[7.7]	[6.6]	619	[3.8]
Barium	[61.9]ub	[61.9]ub	[61.5]ub	881b	[52.9]ub
Beryllium	1.1u	1.1u	1.1u	[2.4]	1.1u
Cadmium	1.8u	1.8u	[5.0]ub	137b	9.2b
Calcium	132000ь	131000ь	211000Ь	248000Ь	199000b
Chromium	2.8u	2.8u	2.8u	72.2	2.8u
Cobalt	[3.1]ub	2.6u	[3.5]ub	[27.0]ub	[2.6]ub
Copper	1.lu	[2.4]ub	[1.2]ub	1390b	[1.5]ub
Iron	[56.4]ub	[84.7]ub	[63.2]ub	98500b	[39.9]ub
Lead	9.2bj	[0.93]ub	48.3bj	20000bj	38.2bj
Magnesium	34700ъ	34400b	41400b	68400b	39600b
Manganese	20.3b	19.1b	1170b	30 <b>8</b> 0b	1080Ь
Mercury *	0.20u	0.20u	0.20u	11.50	0.20u
Nickel	9.7u	9.7u	[13.9]	67.3	9.7u
Potassium	[1820]ub	[2110]ub	[3180]	8980b	[3470]ub
Selenium	[15.4]ub	[15.2]ub	[2.6]ub	[34.2]ub	[14.7]ub
Silver	1.6u	1.6u	1.6u	131b	1.6u
Sodium	19700	19700	42300Ь	42900b	41000Ъ
Thallium	0.90u	0.90u	0.90u	[4.7]	0.90u
Vanadium	2.7u	2.7u	2.7u	129	2.7u
Zinc	64.1b	52.7b	1730b	19300Ъ	2360b

- \* Results have been provided by Keystone Laboratory of Houston, Texas. The remaining results are from analyses conducted by Silver Valley Laboratories of Kellog, Idaho.
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### TABLE 5 CONT. INORGANIC ANALYTICAL RESULTS FOR SURFACE WATER SAMPLES (µg/1) RICHARDSON FLAT TAILINGS SUMMIT COUNTY, UTAH TDD F08-8903-06 - PAN FUT0039HDA

SAMPLE # TRAFFIC RPT # SAMPLE LOCATION	RFT-SW-3B MHP-522 SILVER CRK NEAR FLOOD PLAIN TLGS	RFT-SW-4A MHP-515 UPGRDNT DIVERSION DITCH	RFT-SW-4B MHP-516 UPGRDNT DIVERSION DITCH	RFT-SW-5A MHP-517 DIVERSION DITCH	RFT-SW-5B MHP-518 DIVERSION DITCH
Aluminum	1740b	[32.8]	30900	[32.6]	[33.7]
Antimony	[53.8]ub	[39.3]	937	19.9u	19.9u
Arsenic	41.9	68.6	2326	10.7j	17.4j
Barium	[82.2]ub	[102]	2330	[37.0]	[35.9]
Beryllium	1.1u	1.1u	[1.7]	1.1u	1.1u
Cadmium	[16.0]	[4.6]	289	[3.3]	6.2
Calcium	206000ь	180000	446000	308000	314000
Chromium	2.8u	2.8u	50.2	2.8u	2.8u
Cobalt	[5.7]	[8.8]	[48.7]	2.6u	2.6u
Copper	71.4b	[13.6]	1540	[12.4]	[5.6]
Iron	5320ъ	267	107000	416	696
Lead	1100bj	41.8	22100j	12.9	24.9
Magnesium	42000Ъ	38000	104000	61600	62700
Manganese	1220ь	2780	21100	1310	1340
Mercury *	0.2u	0.2u	8.0	0.2u	0.2u
Nickel	9.7u	9.7u	65.5	[25.8]	9.7u
Potassium	[3160]ub	5580	15600	273u	273u
Selenium	[28.5]ub	14.0ur	1.2ur	14.0ur	14.0ur
Silver	[6.3]ub	1.6u	201	1.6u	1.6u
Sodium	42000Ь	54600	58500	28800	29300
Thallium	0.90u	14.1	83.4j	1.0u	1.0u
Vanadium	[5.5]	2.7u	58.7	2.7u	2.7u
Zinc	3790b	2650	49100	2990	3060

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- j The associated numerical value is an estimated quantity because the amount detected is below the contract required detection limit (CRDL) or because minor quality control criteria were not met. Presence of the material is reliable.
- r Quality control indicates that data is <u>not</u> usable (material may or may not be present). **DO NOT USE THIS DATA!**.
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Potassium Selenium [2010] 14.0ur

[2230] 12.0u [1480] 14.0ur [1710] 1.4ur [1330] 14.0ur

# TABLE 5 CONT. INORGANIC ANALYTICAL RESULTS FOR SURFACE WATER SAMPLES (µg/1) RICHARDSON FLAT TAILINGS SUMMIT COUNTY, UTAH TDD F08-8903-06 - PAN FUT0039HDA

SAMPLE # TRAFFIC RPT # SAMPLE LOCATION CRK	RFT-SW-8B MHP-512 SILVER CRK IN MARSHY AREA	RFT-SW-9A MHP-506 SILVER CRK CULVERT NEAR ROUTE 40	RFT-SW-9B MHP-507 SILVER CRK CULVERT NEAR ROUTE 40	RFT-SW-10A MHP-503 DNGRDNT SILVER CREEK	RFT-SW-10B MHP-504 DNGRDNT SILVER CREEK
Aluminum	[106]	[24.6]	370	[26.6]	[75.8]
Antimony	19.9u	19.9u	19.9u	19.9u	19.9u
Arsenic	[8.4]	[6.8]	12.2	[3.3]	[5.6]r
Barium	[33.5]	[54.6]	[59.1]	[51.5]	[52.5]
Beryllium	1.1u	1.1u	1.1u	1.1u	1.1u
Cadmium	1.8u	1.8u	1.8u	[2.0]	[2.2]
Calcium	303000	139000	144000	147000	147000
Chromium	2.8u	2.8u	[2.8]	2.8u	2.8u
Cobalt	2.6u	[2.6]	2.6u	2.6u	[4.0]
Copper	[4.9]	[2.9]	[11.7]	[6.3]	[5.6]
Iron	1090	338	1200	195	481
Lead	36.6	6.2	122	[5.9]	35.8
Magnesium	64900	34600	35600	36400	36200
Manganese	950	274	335	223	240
Mercury *	0.2u	0.2u	0.2u	0.2u	0.2u
Nickel	9.7u	9.7u	9.7u	9.7u	9.7u
Potassium	[986]	[1790]	[1980]	2090	[1920]
Selenium	14.0ur	14.0ur	1.4ur	1.4ur	14.0ur
Silver	1.6u	1.6u	1.6u	1.6u	1.6u
Sodium	44300	22900	23400	25200	24100
Thallium	1.0u	1.0u	1.0u	1.0u	1.0u
Vanadium	2.7u	2.7u	2.7u	2.7u	2.7u
Zinc	332	429	726	419	519

<sup>\* -</sup> Results have been provided by Keystone Laboratory of Houston, Texas. The remaining results are from analyses conducted by Silver Valley Laboratories of Kellog, Idaho.

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#### TABLE 5 CONT. INORGANIC ANALYTICAL RESULTS FOR SURFACE WATER SAMPLES (µg/1) RICHARDSON FLAT TAILINGS SUMMIT COUNTY, UTAH TDD FO8-8903-06 - PAN FUT0039HDA

	SAMPLE # TRAFFIC RPT # LOCATION	RFT-SW-11A MHP-528 DUPLICATE OF 2A	RFT-SW-11B MHP-527 DUPLICATE OF 2B	RFT-SW-12A MHP-513 FILTERED BLANK	RFT-SW-12B MHP-514 UNFILTERED BLANK	RFT-SW-15A MHP-529 FILTERED BLANK	RFT-SW-15B MHP-530 UNFILTERED BLANK	RFT-SW-16A MHP-534 DNSTRM OF PACE HOMER CONFLUENCE SILVER CRK
	Aluminum	[28.0]ub	43400b	[23.3]	[16.6]	[24.9]ub	[32.1]ub	[44.6]ub
	Antimony	[26.9]ub	199b	19.9u	19.9u	19.9u	19.9u	[20.1]ub
	Arsenic	[5.6]	540	2.3u	12.0	2.3u	2.3u	2.3u
	Barium	[60.8]	788b	1.3u	1.3u	1.3u	1.3u	[56.7]ub
	Beryllium	1.1u	[2.1]	1.1u	1.1u	1.1u	1.1u	1.1u
	Cadmium	6.0b	127b	1.8u	1.8u	1.8u	1.8u	10.3b
	Calcium	211000Ь	246000b	[154]	[56.3]	[214]ub	[136]ub	205000b
	Chromium	2.8u	68.5	[3.5]	2.8u	2.8u	2.8u	2.8u
	Cobalt	[5.3]	[28.4]ub	2.6u	2.6u	2.6u	2.6u	[3.1]ub
	Copper	[1.2]	1260b	1.1u	[4.4]	1.1u	1.1u	[2.7]ub
	Iron	[55.1]	89300Ъ	277	219	[64.2]ub	[41.5]ub	[31.5]ub
	Lead	34.6bj	17900bj	0.90u	0.90u	[1.8]ubj	[1.6]ubj	[1.4]ubj
	Magnesium	41400b	67100b	[42.5]	20.9u	[43.7]ub	[29.0]ub	40400Ъ
	Manganese	1180b	2950ь	[2.3]	[2.0]	[1.4]ub	[2.5]ub	1070Ь
	Mercury *	0.20u	8.50	0.2u	0.2u	.20u	.20u	.20u
۸.	Nickel	9.7u	57.3	9.7u	9.7u	9.7u	9.7u	9.7u
	Potassium	[3060]ub	8770ь	273u	273u	273u		[3180]ub
	Selenium	[15.1]ub	[43.9]ub	1.4ur	1.4ur	1.2u	1.2u	[2.7]ub
	Silver	1.6u	117	1.6u	1.6u	1.6u	23.8b	1.6u
	Sodium	41200	42700	[68.9]	[76.0]	[47.5]ub	13.2u	41900b
	Thallium	0.90u	[4.2]	1.0u	1.0u	.90u	.90u	.90u
	Vanadium	[3.8]	121	2.7u	2.7u	2.7u		2.7u
	Zinc	1730ь	17700Ь	[4.5]	1.3u	[12.6]ub	[6.5]ub	2970b

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# TABLE 5 CONT. INORGANIC ANALYTICAL RESULTS FOR SURFACE WATER SAMPLES (µg/1) RICHARDSON FLAT TAILINGS SUMMIT COUNTY, UTAH TDD FO8-8903-06 - PAN FUT0039HDA

SAMPLE # TRAFFIC RPT # SAMPLE LOCATION	RFT-SW-16B MHP-535 DNSTRM OF PACE HOMER DITCH CONFLUENCE W/SILVER CRK	RFT-SW-17A MHP-537 UPGRDNT CONFLUENCE SILVER CRK PACE HOMER DITCH	RFT-SW-17B MHP-538 UPGRDNT CONFLUENCE SILVER CRK PACE HOMER DITCH	RFT-SW-18A MHP-539 BLANK	RFT-SW-18B MHP-540 BLANK
Aluminum	[61.1]ub	[49.5]ub	[29.6]ub	[29.0]ub	[27.0]ub
Antimony	19.9u	19.9u	[20.1]ub	19.9u	19.9u
Arsenic	[5.6]	2.3u	2.3u	2.3u	2.3u
Barium	[56.0]ub	[54.3]ub	[51.1]ub	[1.7]ub	1.3u
Beryllium	1.1u	1.1u	1.1u	1.1u	1.1u
Cadmium	10.3b	13.3b	13.5b	1.8u	1.8u
Calcium	205000b	228000ь	218000ь	[109]ub	[90.8]ub
Chromium	2.8u	2.8u	2.8u	2.8u	2.8u
Cobalt	[3.5]ub	[6.6]ub	[5.3]ub	2.6u	[2.7]ub
Copper	[4.9]ub	[3.9]ub	[1.5]ub	1.1u	1.1u
Iron	496b	346bj	[43.7]ub	[33.4]ub	[32.2]ub
Lead	25.2bj	8.8b	0.90uj	[1.3]ub	0.90uj
Magnesium	40300ь	41800b	39900Ь	[38.6]ub	[27.8]ub
Manganese	1080ь	1380b	1330b	[2.0]ub	[1.4]ub
Mercury *	0.20u	0.20u	0.20u	0.20u	0.20u
Nickel	[10.6]	9.7u	9.7u	9.7u	9.7u
Potassium	[3380]ub	[3630]ub	[3570]ub	273u	[437]ub
Selenium	1.2u	[20.0]ub	[18.0]ub	1.2u	1.2u
Silver	1.6u	1.6u	1.6u	1.6u	1.6u
Sodium	41900	48000Ь	46400b	[41.8]ub	[13.3]ub
Thallium	0.90u	0.90u	0.90u	0.90u	0.90u
Vanadium	2.7u	2.7u	2.7u	2.7u	2.7u
Zinc	3130ь	38 <b>8</b> 0b	3720b	[2.9]ub	1.3u

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# TABLE 5 CONT. INORGANIC ANALYTICAL RESULTS FOR SURFACE WATER SAMPLES (µg/1) RICHARDSON FLAT TAILINGS SUMMIT COUNTY, UTAH TDD F08-8903-06 - PAN FUT0039HDA

SAMPLE # TRAFFIC RPT # SAMPLE LOCATION	RFT-OPW-1A MHP-532 PONDED AREA AT BASE OF TLGS DAM	RFT-OPW-1B MHP-533 PONDED AREA AT BASE OF TLGS DAM
Aluminum	[23.0]ub	317b
Antimony	19.9u	19.9u
Arsenic	[2.9]	33.1
Barium	[37.3]ub	[82.2]ub
Beryllium	1.1u	1.1u
Cadmium	1.8u	[3.6]ub
Calcium	312000	369000b
Chromium	2.8u	2.8u
Cobalt	[6.3]ub	[5.6]ub
Copper	[1.2]ub	[6.6]ub
Iron	503Ъ	10200b
Lead	0.90u	68.2bj
Magnesium	56100b	58800b
Manganese	12900ь	21400b
Mercury *	0.20u	0.20u
Nickel	9.7u	9.7u
Potassium	5380	9960
Selenium	12.0u	[18.5]ub
Silver	1.6u	1.6u
Sodium	60000Ь	63400b
Thallium	0.90u	0.90u
Vanadium	2.7u	2.7u
Zinc	[19.8]ub	759Ъ

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#### APPENDIX A SAMPLE COLLECTION AND SHIPMENT INFORMATION

#### APPENDIX A SAMPLE COLLECTION AND SHIPMENT INFORMATION RICHARDSON FLAT TAILINGS SUMMIT COUNTY, UTAH TDD F08-8903-06 - PAN FUT0039HDA

SAMPLE ID	PARAMETERS	TRAFFIC RPT #	SAMPLE TAG #	CHAIN OF CUSTODY
RFT-SW-1A	METALS	MHP-525	8-94551	8-11438
RFT-SW-1B	METALS	MHP-526	8-94552	8-11438
RFT-SW-2A	METALS	MHP-523	8-94553	8-11438
RFT-SW-2B	METALS	MHP-524	8-94556	8-11438
RFT-SW-3A	METALS	MHP-521	8-94554	8-11438
RFT-SW-3B	METALS	MHP-522	8-94555	8-11438
RFT-SW-4A	METALS	MHP-515	8-94557	8-11438
RFT-SW-4B	METALS	MHP-516	8-94558	8-11438
RFT-SW-5A	METALS	MHP-517	8-94559	8-11438
RFT-SW-5B	METALS	MHP-518	8-94560	8-11438
RFT-SW-6A	METALS	·MHP-519	8-94561	8-11438
RFT-SW-6B	METALS	MHP-520	8-94562	8-11438
RFT-SW-7A	METALS	MHP-509	8-94563	8-11446
RFT-SW-7B	METALS	MHP-510	8-94564	8-11446
RFT-SW-8A	METALS	MHP-511	8-94565	8-11446
RFT-SW-8B	METALS	MHP-512	8-94566	8-11446
RFT-SW-9A	METALS	MHP-506	8-94567	8-11446
RFT-SW-9B	METALS	MHP-507	8-94587	8-11446
RFT-SW-10A	METALS	MHP-503	8-94568	8-11446
RFT-SW-10B	METALS	MHP-504	8-94569	8-11446
RFT-SW-11A	METALS	MHP-528	8-94591	8-10998
RFT-SW-11B	METALS	MHP-527	8-94590	8-10998
RFT-SW-12A	METALS	MHP-513	8-94588	8-10998
RFT-SW-12B	METALS	MHP-514	8-94589	8-10998
RFT-SW-15A	METALS	MHP-529	8-94593	8-10998
RFT-SW-15B	METALS	MHP-530	8-94593	8-10998
RFT-SW-16A	METALS	MHP-534	8-94599	8-10997
RFT-SW-16B	METALS	MHP-535	8-94600	8-10997
RFT-SW-17A	METALS	MHP-537	8-94527	8-10997
RFT-SW-17B	METALS	MHP-538	8-94527	8-10997
RFT-SW-18A	METALS	MHP-539	8-94529	8-10997
RFT-SW-18B	METALS	MHP-540	8-94530	8–10997
RFT-TA-1	METALS	MHL-955	8-94580	8-11446
RFT-TA-2	METALS	MHL-956	8-94581	8-11446
RFT-TA-3	METALS	MHP-500	8-94582	8-11446
RFT-TA-4	METALS	MHP-501	8-94583	8-11446
RFT-TA-5	METALS	MHP-502	8-94584	8-11446
RFT-OPW-1A	METALS	MHP-532	8-94595	8-10998
RFT-OPW-1B	METALS	MHP-533	8-94596	8–10998

#### APPENDIX A CONT. SAMPLE COLLECTION AND SHIPMENT INFORMATION RICHARDSON FLAT TAILINGS SUMMIT COUNTY, UTAH TDD F08-8903-06 - PAN FUT0039HDA

SAMPLE ID	PARAMETERS	SAS #	SAMPLE TAG #	CHAIN OF CUSTODY
RFT-SE-1	METALS	4725H-01	8-94570	8-11437
RFT-SE-2	METALS	4725H-02	8-94571	8-11437
RFT-SE-3	METALS	4725H-03	8-94572	8-11437
RFT-SE-4	METALS	4725H-04	8-94573	8-11437
RFT-SE-5	METALS	4725H-05	8-94574	8-11437
RFT-SE-6	METALS	4725H-06	8-94575	8-11437
RFT-SE-7	METALS	4725H-07	8-94576	8-11437
RFT-SE-8	METALS	4725H-08	8-94577	8-11437
RFT-SE-9	METALS	4725H-09	8-94578	8-11437
RFT-SE-10	METALS	4725H-10	8-94579	8-11437
RFT-SE-16	METALS	4725H-13	8-94525	8-11440
RFT-SE-17	METALS	4725H-14	8-94528	8-11440
RFT-OSE-1	METALS	4725H-11	8-94594	3-11437
RFT-OSE-2	METALS	4725H-12	8-94597	8-11437

APPENDIX B

SAMPLING PHOTO LOG



PHOTO 1: WEST FACING PHOTO OF SAMPLE LOCATION RFT-SW/SE-4.



PHOTO 2: WEST FACING PHOTO OF FIT MEMBER COLLECTING TAILINGS SAMPLE RFT-TA-1.

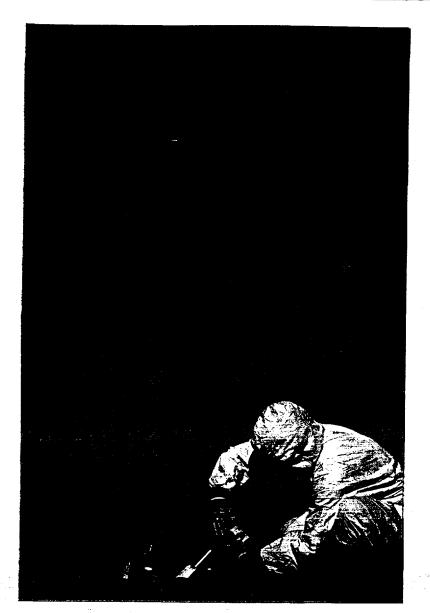
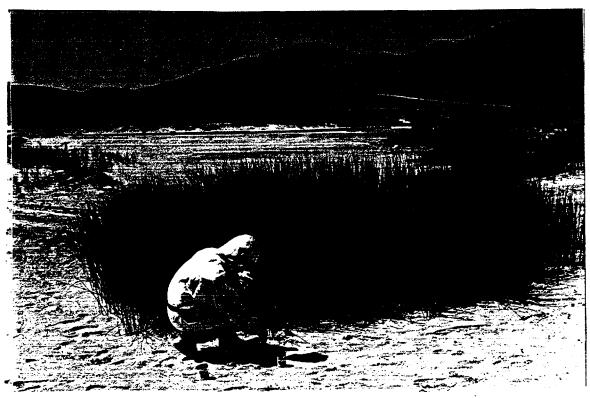


PHOTO 3 (LEFT): NORTHWEST FACING PHOTO OF FIT MEMBER COLLECTING TAILINGS SAMPLE RFT-TA-2.

PHOTO 4 (BELOW): SOUTH FACING PHOTO OF FIT MEMBER COLLECTING TAILINGS SAMPLE RFT-TA-3.



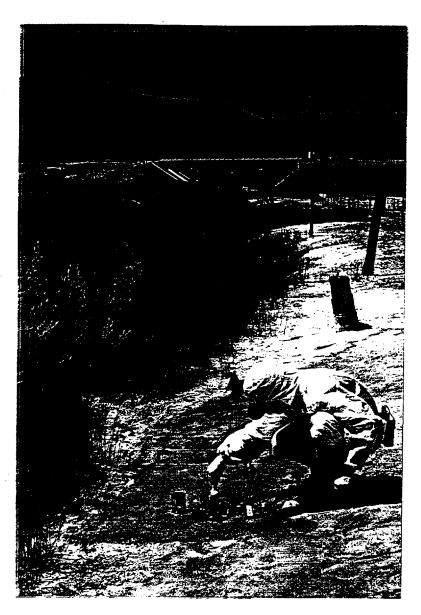


PHOTO 5: SOUTHWEST VIEW OF SAMPLE LOCATION RFT-TA-4.

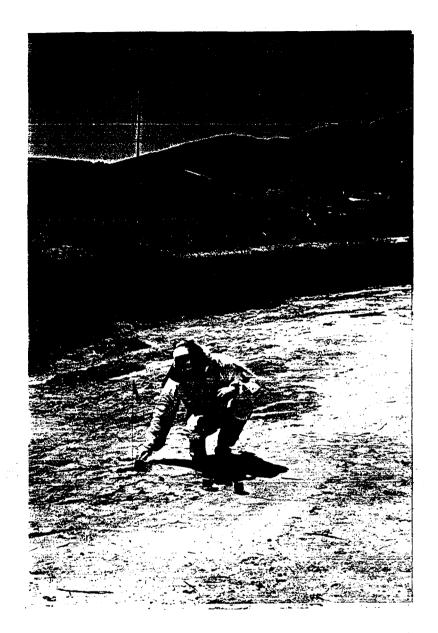


PHOTO 6: SOUTH VIEW OF SAMPLE LOCATION RFT-TA-5.



PHOTO 7: FIT MEMBER COLLECTING SAMPLE RFT-SW-9.



PHOTO 8: NORTHEAST FACING PHOTO OF FIT MEMBER COLLECTING SURFACE WATER SAMPLE RFT-SW/SE-7.



PHOTO 9: SOUTHEAST FACING PHOTO OF FIT MEMBER COLLECTING SAMPLE RFT-SW/SE-8.



PHOTO 10: NORTH FACING PHOTO OF SAMPLE LOCATION RFT-SW/SE-6.



PHOTO 11: WEST FACING PHOTO OF SAMPLE LOCATION RFT-SW/SE-5.



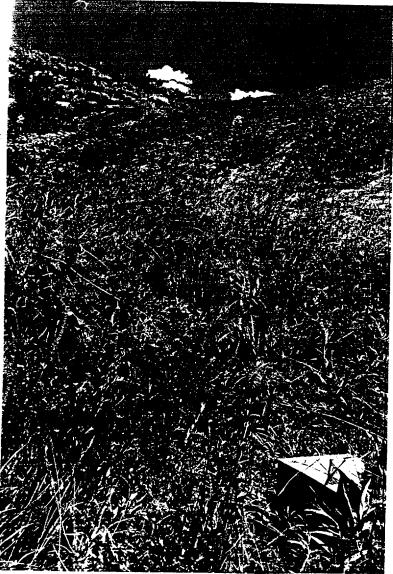


PHOTO 12 (ABOVE): SOUTH FACING
PHOTO OF SURFACE WATER
SAMPLE LOCATION RFT-OPW-1
AND RFT-OSE-1 AT BASE OF
TAILINGS DAM.

PHOTO 13 (LEFT): NORTHEAST
FACING PHOTO OF OPPORTUNITY SEDIMENT SAMPLE
LOCATION RFT-OSE-2.

#### APPENDIX C

QUALITY ASSURANCE REVIEW

#### REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW

\*\*\*guideline references are from Contract #787\*\*\*

Case No.: 12334 TDD No.: F0-8909-08

Site: Richardson Flats

Contractor Laboratory: Silver Valley Labs, Inc.; Kellogg, ID

Data Reviewer: Lynn Fischer Date of Review: Oct. 11, 1989

Sample Matrix: 19 low waters

Analysis: Metals and Mercury.

Sample Nos.: MHP520, MHP521, MHP522, MHP523, MHP524, MHP525, MHP526,

MHP527, MHP528, MHP529, MHP530, MHP532, MHP533, MHP534,

MHP535, MHP537, MHP538, MHP539, and MHP540.

- ( ) Data are acceptable for use.
- (X) Data are acceptable for use with qualifications noted.
- ( ) Data are preliminary pending verification.
- ( ) Data are unacceptable.

Action required by DPO?

No X Yes The following items require action:

All Mercury data is unusable because of missed holding times. Mercury analysis however was performed by Keystone, TX prior to samples being shipped on to Silver Valley for analysis, this data is being used. SMO, or whomever decided to forward the samples should always consider holding time requirements when making these decisions.

Action required by project officer?

No X Yes

The following are our findings:

Data are acceptable for use, with the exception of the mercury analysis, with the following qualifications.

Holding time criteria were met for all analysis with the exception of the mercury cold vapor analysis; all the mercury results are flagged "a", unusable.

All calibration frequencies and requirements were met.

Quite a few contaminants were detected in analysis of the initial, continuing, and laboratory preparation blanks they are: aluminum, antimony, barium, calcium, cadmium, cobalt, copper, iron, magnesium, manganese, potassium, selenium, silver, sodium, zinc, and lead. All samples with positive results for these analytes were flagged "ub", "uj", or "b". "UB" was used to flag those results detected below the contract required detection limit (CRDL), "uj" was used to flag those results greater than the CRDL but less than five times the greatest amount detected in any blank, and "b" was used to flag all other positive results.

Brackets are applied to all results greater than the instrument detection limit (IDL) but less than the CRDL.

Duplicate results for the following analytes were outside limits (+/-20%), however none were flagged because all were associated with either results below the CRDL, contaminants detected in the blanks, or one of the values was undetected: aluminum, copper, iron, potassium, arsenic, and selenium.

Analysis of the spiked sample had two outliers, lead (16.7%) and selenium (-134.3%), limits are (75-125%). All lead results were flagged "j", results may be biased low. No flags were added to selenium results since both the sample and spiked sample results were less than the CRDL.

All other quality control (QC) criteria were met.

#### Inorganic Data Completeness Checklist

```
Inorganic analysis data (Form I)
Initial calibration and continuing calibration verification (Form
IIA)
CRDL standard for AA and ICP (Form IIB)
Blanks (Form III)
ICP interference Check sample (Form IV)
Spike sample recovery (Form VA)
Post digestion spike sample recovery (Form VB)
Duplicates (Form VI)
Laboratory control sample (Form VII)
Standard addition results (Form. VIII)
ICP serial dilutions (Form IX)
Holding times (Form X)
Instrument detection limits-quarterly (Form XI)
ICP interelement correction factors-quarterly (Form II)
ICP linear ranges-quarterly (Form XIII)
Raw data for interference checks
Raw data for calibration standards
Raw data for blanks
Raw data for CRI and/or CRA
Raw data for samples
Raw data for duplicates
Raw data for spikes
Traffic reports
```

#### Contract Compliance

r.		tial and Continuing Calibration idelines pg. E-4, Form IIA)	verification	on (ICV and CCV)
	1.	Was instrument calibrated dail	y and each t yes X	ime it was set up?
	2.	Were instruments calibrated us	sing 1 blank yes X	and several standards?
	3.	Were calibration verifications	within 90-1 yes X	10%? no
	4.	Were continuing calibrations r	run at 10% fr yes X	requency?
TT		Were the raw data correctly tr L Standards for ICP (CRI) and/o	yes X	no
L		m IIB)	T AM (CAA) (	guidelines pg. E-0,
	1.	For ICP analysis, were standar (whichever was greater) analyze each sample run, or at a minim whichever was more frequent?	ed at the be num of twice/	ginning and the end of
		•	yes X	no
	2.	For furnace AA analysis, were beginning and the end of each twice/8 hour shift, whichever	sample run,	or at a minimum of
	3.	Were the CRI and/or CRA standa	rds analyzed yes X	after the ICV?
	4.	Were these data reported on Fo	rm IIB? yes X	no
III.	5. . B]	Were the raw data correctly tr lanks (guidelines pg. E-6, Form	yes X	to Form IIB?
	1.	<ul> <li>Was the initial calibration after the initial calibration</li> </ul>	·	
	2.	<ul> <li>Was a continuing calibration after each continuing calibr</li> </ul>		
			1	
	3.	. Was a preparation blank (PB) least 1 in 20 samples?	yes X	a frequency of at

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	<ol> <li>How many elements were detected above the CRDLs? o (if 0, g to question 5)</li> </ol>
	4a. How many elements were detected in the blanks at greater than one-half the amount detected in any sample?
	5. Were raw data correctly transcribed onto Form III?  yes X no
Commen	ts: See narrative for elements detected in blanks.
IV. I	CP Interference Checks (ICS) (guidelines pg. E-7, Form IV)
1	. Was the ICS analyzed twice per 8 hour shift?  yes X no
2	. Were the ICSs analyzed before and after samples?  yes X no
3	. Was any massive interference detected?  yes no X
4	• Were the ICSs within ±20% mean value?  yes X  no
5.	• Were raw data correctly transcribed onto Form IV?
V. Sp	ike Sample Analysis (S) (guideline pg. E-8, Form V)
1.	Were spikes analyzed at a frequency of 1 in 20 samples?  yes'X no
2.	Were spike recoveries correctly calculated?  yes X no
	$% recovery = \frac{(SSR - SR)}{SA} \times 100$
	SSR = Spiked Sample Result SR = Sample Result SA = Spike Added
3.	Were spike recoveries within the range of 75-125%?  yes no X
	<pre>3a. For recoveries outside this range, were associated data flagged "N" by the laboratory on Forms I and V?</pre>
	(an exception if granted where the sample concentration is >4X the spike concentration)
	4. Were raw data correctly transcribed onto Form V?

yes	X	no	
•			

\* Refer to page E-9 (SOW 787) for information regarding the amount of spike to be added for each analyte and for other information about the Spike Sample Analysis.

\_VI. Duplicates (D) (guidelines pg. E-11, Form VI)

- 1. Were duplicates analyzed at a frequency of 1 in 20 samples? yes X no
- 2. Were RPDs correctly calculated?

yes X no

 $RPD = \frac{S - D}{(S + D)/2} \times 100$ 

S = Sample

D = Duplicate

3		For sample concentrations >5x the CRDL, were RPDs ±20%? (limits of ±35% apply for soil/sediment/tailings samples)  yes X no NA
3		or sample concentrations >5x the CRDL, did duplicate analysis esults fall outside the control window of ± the CRDL?  yes no X NA
. 3		here the RPDs exceeded the control limits, were the data lagged '*' on Forms I and VI by the laboratory?  yes X no NA
4	. W	ere raw data correctly transcribed onto Form VI?  yes X no
- Fie	ld b	Considerations: lanks cannot be used for duplicate analyses tes must be analyzed for each analytical method
VII.	Lab VII	oratory Control Sample (LCS) Analysis (guideline pg. E-12, Form)
	1.	Was an LCS analyzed for every sample delivery group or batch of samples, whichever was more frequent?  yes X  no
	2.	Were recoveries within the 80-120% limit?  yes X  no
-	• •.	-if the recoveries were outside this range the analysis must be terminated, the problem corrected and the previous samples associated with that LCS redigested and reanalyzed.
	3.	Were the raw data correctly transcribed onto Form VII?  yes X no.
		I. Furnace Atomic Absorption (AA) QC Analysis (guidelines pg. 4, Form VIII)
	1.	Does the raw data package contain absorbance values for two injections per sample, the average values and the relative standard deviation (RSD)?
		yes X no
	2.	For analyte concentrations > the CRDL, did the RSD for the duplicate injections agree within 20%? (if yes, go to question 3)
		yes X no
		$RSD = \frac{SD}{M} \times 100$
		SD = Standard Deviation of Duplicate Injections

	2a. Were samples that excee	yes	criteria reanalyzed?
	2b. Did any reanalyzed samp	les exceed t	he 20% criteria?
	2c. If yes, did the laborat	ory flag the	data of Form I with a
		yes	по
3.	Was the recovery of the spi	ke > 40%? (i	f yes, go to question
		yes X	no
	If no, was the sample dilut	ed and rerun yes	with another spike?
4.	Was sample absorbance >50% to question 5).	of spike abs	orbance?* (if yes, go
	•	yes	no X
* Spike a	absorbance = absorbance of sp	iked sample	- absorbance of sample
	4a. For spike recoveries be reported to the IDL?	tween 85 and	115%, were results
		yes X	no
	$RPD = \frac{(SSR - SR)}{SA} \times 100$		
	SSR = Spike Sample Recor SR = Sample Result SA = Spike Added	very ;	
	4b. For spike recoveries ou results reported to the		
5.	Was spike recovery between 8 question 6)	35 and 115%?	(if no, go to
	5a. Were results quantified reported to IDL?	from calibra	ation curve and
		yes	no
6.	Was an MSA at 50, 100 and 15 analyzed?	50% of the sa	ample absorbance
	••	yes	no
	6a. Was each MSA analysis id with the slope, intercept		
	6b. Were these data correctl	y transcribe	ed onto Form VIII?

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		yes no
		6c. Were correlation coefficients(r) > 0.995?  yes no
		6d. If no, were MSAs run once more?  yes no
		- If the correlation coefficients were still > 0.995, data on Form I must be from the run with the best 'r' and the dat on Forms I and VII must be flagged with a '+'.
		Were these criteria met?  yes  no
		6e. Were all MSA obtained data marked with an 'S' or an S+ on form I?
		y <b>es</b> no
IX.	ICP	Serial Dilution (L) Analysis (guidelines pg. E-12, Form IX)
	1.	Was an ICP serial dilution performed on each group of samples of a similar matrix (i.e., soil, water) and concentration (i.e., low, high) or for each sample delivery group, whichever was more frequent?
		yes X no
	· 2.	For elements with concentrations >10X the CRDL, did any exceed the serial dilution results by more than 10%? (if no, skip questions 3 and 4)  yes X  no
		% difference = $\frac{I - S}{I} \times 100$
		<pre>I = Initial Sample Result S = Serial Dilution Result (instrument reading X5)</pre>
	3.	Which elements had concentrations that exceeded the 10% criteria? only those associated with undetected values or blank contaminanats.
	4.	Did the laboratory flag these data with an 'E' on Form IX?  yes  no
	5.	Were the raw data correctly transcribed onto Form IX?  yes X no
X.	Insti	rument Detection Limits (IDL) (guidelines pg. E-13, Form XI)
	1. W	Were IDLs reported for each analyzed element?  yes X no
	2. ¥	Were IDLs reported for each instrument used?  yes X no

3. Did the IDLs meet the contract requirements? (refer to pg. E-13, SOW 787)

- XI. Interelement Corrections for ICP (guidelines pg. E-13, Form XII)
  - 1. Were correction factors reported on Form XII?

    yes X no \_\_\_\_\_
- XII. Linear Range Analysis (LRA) (guidelines pg. E-14, Form XII)
  - 1. Was a linear range verification standard analyzed? yes X no \_\_\_\_\_
  - 2. Was the results within  $\pm 5\%$  of the true value? yes X no \_\_\_\_

### Holding Times

Limits: Metals - 6 months; Hg - 30 days; Cn - 28 days.

- 1. Verified date of sample receipt by laboratory 8-16-89
- 2. Date of preparation/analyses ICP 8-24-89

AS - 8-31-89

SE - 8-31-89

PB - 8-29-89

TL - 8-24-89

3. Were holding times met? yes X, for all but HG

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- 140

### U.S. EPA - CLP

			1_ Analysis data she	Belo-	epa sample no.
	•	TURKENUTE	MINDIGIO DAIN GILL	<b>.</b>	MAPSON
ab Name: SIL	VER VALLEY LABS		_ contract: &-U	<u>%-0074</u>	MHP520
ab Code: SIL	/ER Ca	se No.: [2	334 SAS NO.: _		SDG No.: MHP5
atrix (soil/	vater): LOAT	EL.		-	le ID:
evel (low/me	id): Lov	<u>U</u>	Da	ts Rec	eived: 08/16/89
Solids:	0.	0			
c	oncentration	Units (ug/	L or mg/kg dry we	eight):	· UG/L
	CAS No.	Analyte	Concentration C	Q.	H
	7429-90-5	Aluminum.	्रय, ना है।	u <b>s</b>	PLAF
		Antimony_	19.9 1		
	7440-38-2	Arsenic	34 40 0		D POR PO
	7440-39-3	Barium	14.9	, २	Pingo
		Beryllium			P
		Cadmium	1.8 4		IZI
		Calcium	830000.	$\mathcal{B}$	12 Lake
	7440-47-3	Chromium	2.8 4		IZ I
* -	7440-48-4	Cobalt	L3.81 6	なは	
	7440-50-8	Copper	1.2 15	1	PWF
	7439-89-6	Iron	183,		1Pi
	7439-92-1	Lead		NERG	E -Air
•		Magnesium	7/200	<u>ੀਰੇ</u>	5 AC
	•	Manganese	3170.	İ,Ç	PAF
		Mercury	0.2141	R	IE LAF
		Nickel	9.7 11		P
	7440-09-7	Potassium	aa 30. B		$ oldsymbol{P} $ :4.5
	7782-49-2	Selenium_		N*	Elian
		silver	1.6		121
		Sodium		8	12 12
	7440-28-0		0,9		P Ar
	7440-62-2	Vanadium_	1 - 2.7   U		1 <u>P</u>
	7440-66-6	zinc	198.	ñ	-11"
		Cyanide			AR
	0-21		Before: OLE	0;	March 1
lor Before:		سمه	Before:	, ,	Texture:
lor After:	Concres	S clarit	y After:		Artifacts:
mments:					

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS, INC.

Lab Code: SILVER

Case No.: 12334

SAS No.:

SDG No.: MHP520

Matrix (soil/water): WATER

Lab Sample ID:

Level (low/med):

LOW

Date Received: 08/16/89

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	:   Analyte	  Concentration	( ) a	i M	! !
7429-90-5		<u> </u>		<u> </u>	ILAF
1 <u>7440-36-0</u> 1 <u>7440-38-2</u>	<u>Antimony_</u>   <u>Arsenic</u>	[3.8]	RIN	:P_	998
	Barium Beryllium	<u>(52.91</u>		<u> </u>	1 4 6 9 60 1
17440-43-9	Cadmium	9.2	1 13	<u>; P</u> _	
	: <u>Calcium    </u> : :C <u>bromium  </u> :	199000 2.8		<u>; P</u> _	luar I
7440-48-4	Cobalt	72.6 [1.57]	18 L W.R	<u> </u>	
: <u>7440-50-8</u> : <u>7439-89-6</u>	:Copper: :Iron:	(39.97		IP_	luni Icari
: <u>7439-92-1</u>	Lead		INS BI	<u>‡</u> E_	WYO R
	<u>Magnesium</u>     <u>Manganese</u>	<u> </u>		<u>: P</u> _	ilas linic
: <u>7439-97-6</u>	Mercury	0.20	UINR	TCV	379 LAF
<u>7440-02-0_ </u>   74 <u>40-09-7</u>	<u>Nickel                                    </u>	9.7 [3470]		<u> </u>	I SAIL BOS
	Selenium :	14.7		F	کاد! ا
<u>7440-22-4</u>	<u>Silver</u>	1.6 41000		<u> </u>	i Mir
	Thallium	0.90 1 2.7		<u> </u>	1-46
	<u> Yanadium_ </u>   <u>Zinc</u>	2360			,  UAF
	Cyanide :			<u>:NR</u> :	; ; ;

Color Before: COLORLESS

Clarity Before: CLEAR

Color After:

COLORLESS

Clarity After: CLEAR

EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS, INC.

SAS No.:

Lab Code: SILVER Case No.: 12334

SDG No.: MHP520

Matrix (soil/water): WATER

Lab Sample ID:

Level (low/med): LOW

Date Received: 08/16/89

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

,			<del></del>		•
CAS No.	: Analyte	Concentration	:c: @	M	:
1	1	<b>!</b>	! _ !		:
17429-90-5	Aluminum	1740	: <u>: B</u>	<u>; P</u>	MAG
17440-36-0			BI OH	: 2	1945
17440-38-2	Arsenia	41.9	: <u>: X</u>	:F	LUAN AND THE PARTY OF THE PARTY
17440-39-3	Barium	182.21	1 B 1 tats	<u>: P</u> _	LINE
<u> </u>	Beryllium	1.1	: ñT	<u>: P</u>	1
17440-43-9	Cadmium	16.0	l <u> </u>	<u>:P</u>	- HE
17440-70-2	:Calcium	206000	<u> </u>	<u> </u>	INE
17440-47-3	:Chromium_	2.8		<u> </u>	;
: <u>7440-48-4</u>	: <u>Cobalt</u>	115.71		<u> </u>	- المدا
1 <u>7440-50-8</u>	:Copper	71.4	! <u> </u>	<u> </u>	
: <u>7439-89-6</u>	: <u>Iron</u>	5320_		<u> </u>	
17439-92-1	Lead	1100	132	<u>: P</u>	
1 <u>7439-95-4</u>	: <u>Magnesium</u>		: _ <u>:'6</u>	<u>:P</u>	
	<u>Manganese</u>	1220_	1_13	12	LUNE -
+ <u>7439-97-6</u>	Mercury	2.2_	- <u></u>	<u> 167</u>	OP SUF
	Nickel	<u> </u>	: <u>u';</u>		
	<u>Potassium</u>			12_	
17782-49-2			BIVAX . Y		
	<u> Silver</u>	<u> </u>		<u> </u>	
: Z440-23-5_	Sodium	42000		<u> </u>	أنمرأ
	Thallium	<u></u>		<u> </u>	
	<u>Yanadium</u>	5.52		<u> </u>	
7440-66-6	. =	<u> </u>	<u> </u>	<u> </u>	
ļ	Cyanide			INR	
	 		_ i	; <b>_</b>	i

dor Before: BROWN

Clarity Before: CLEAR Fexture:

flor After: BROWN

Clarity After: CLEAR

Artifacts:

mments:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

13-08-0014

MHP523

Lab Name: SILVER VALLEY LABS, INC.

Case No.: 12334

SAS No.:

SDG No.: MHP520

Matrix (soil/water): WATER

Lab Sample ID:

Level (low/med):

Lab Code: SILVER

LOW

Date Received: 08/16/89

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

			<del></del>	 !	!	1
CAS No.	! Analyte	Concentration	. c :	•	M	
!	!	!	:	!	!	
7429-90-5	Aluminum	719.2)	E	we	, P	<u>L4.</u> 2
	Antimony	25.7			P	بليل إ
:: : : = = = :: : = =	Arsenic	16.6]			F	30
17440-39-3		€1.57			י פ	i a to
	Beryllium		: Ū		<u> </u>	- Po
	Cadmium	5.01	8		[P]	
17440-70-2	~~~~~~~	211000				LAF
	Chromium	2.8	١Ū		; P	}
7440-48-4		[3.5 <u>7</u> ]			[P	Litte
	Copper	11.27			P	146
. =	Iron	163.27	; <u>B</u>	luis	; P	و مالانا
	Lead	48.3	;	NS F BY	F	1000 MP
7439-95-4	Magnesium	41400	1	(C	; P	107
17439-96-5			;	7.	P	101/2
	Mercury	0.20	ָטַ :	MR	CV	093% (AL
17440-02-0	Nickel	13.9	B			معصناها!
	Potassium	`31807	B	しら	P	Lear 3
	:Selenium	12.67	E	N* UK	E_	LAIF
7440-22-4	Silver	1.6	<u>ب</u> :		: P_	;
17440-23-5	Sodium	42300	;	3	<u> </u>	Lac
17440-28-0	:Thallium	0.90	<u>يا</u> :		F	:
7440-62-2	Vanadium_	2.7	ָטַ :		P_	<b>,</b>
17440-66-6	Zing	1730	!	3	P	liar-
}	Cyanide		:	 	NR	1
			-		·	[

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After:

COLORLESS

Clarity After: CLEAR

Artifacts:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS, INC.

.ab Code: SILVER Case No.: 12334

SAS No.:

SDG No.: MHP520

1atrix (soil/water): WATER

Lab Sample ID:

\_evel (low/med): LOW

Date Received: 08/16/89

: Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

·	
:7429-90-5 :Aluminum : 44500 : :8 : :P :	LAF
17440-36-0   Antimony	→IC
:7440-38-2   Arsenic	
7440-39-3  Barium   881   15   1P	we?
7440-41-7  Beryllium	•
7440-43-9  Cadmium     127     18	Jan's
:7440-70-2 :Calcium : 248000 : :3	646
:7440-48-4 :Cobalt : [27.0]:E/:6 :P :	LHE
:7440-50-8   Copper   1390     3	LAC.
7439-89-6   Iron   98500     3     P	المالية المالية
17439-92-1   Lead	الإسا ا
	Mir
17429-96-5 (Managanas) (2000 ) 12 (9)	la!
17439-97-6   Mercury   39.2     N. R.   1CV	BAR LAF
17440-02-0   Nickel   67.3   1   18	OPPS LAF
17440-09-7	, Сий
17782-49-2   Selenium     L34.2[ B N* 46  F	
	شابات
:7440-23-5	LAF.
:7440-28-0 :Thallium : \[ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	14F
:7440-62-2 : Vanagium : 129 : 1	
7440-66-6  Zinc   19300    3   1P	سا الم

lor Sefore: BROWN

Clarity Before: OPAQUE

Texture:

.or After: BROWN

Clarity After: OPAQUE Artifacts:

ments:

EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS, INC.

**3-0074 کئی۔ 3-0074** - <del>100-09-007</del>} MHP525

Lab Code: SILVER

Case No.: 12334

SAS No.:

SDG No.: MHP520

Matrix (soil/water): WATER

Lab Sample ID:

Level (low/med):

LOW

Date Received: 08/16/89

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

!	1		<b>:</b>	i	!
ICAS No. '	: Analyte	Concentration	ici a	M	:
			!!	!	;
: <u>7429-90-5</u>	: Aluminum	<u> </u>	B: un	<u>: P_</u>	1 in 16
: <u>7440-36-0</u>	<u>Antimony_</u>	<u> </u>		<u> </u>	1
: <u>7440-35-2</u>	<u> Arsenic</u>	V.21	BINM .	<u>: F_</u>	- TP
: <u>7440-39-3</u>	Barium	<u> </u>	B' un	<u> </u>	استر قوق
17440-41-7	Beryllium	1.1	U:	<u>: P</u> _	ا موج
17440-43-9	Cadmium	1.8	U:	<u>:</u> P	1
17440-70-2	Calcium	132000	13	: P	LAF
17440-47-3	Chromium :	2.8	UI	<u> </u>	<b>i</b>
	Cobalt	[3.1]	E us	P	lear:
	Copper	1.1	U:	: P	:
	Iron	(56.4)	B1 46	; P	م دران
	Lead	9.2	INS R BU	IF.	1.40
17439-95-4	:Magnesium:	34700	1 В	<u>; P</u>	1-11
	<u>Manganese</u>	20.3	13	; P	pair
	Mercury	0.20	UINR	<u>:CV</u>	1 0300 LAF
17440-02-0	Nickel	9.7		<u>: P</u>	
17440-09-7	Potassium	18201;	B1 148	: P	Late Supplemental
17782-49-2	Selenium	15.4	BIN* 5	F	liait >
17440-22-4	Silver	1.6	U:	: P	} .
17440-23-5	Sodium	19700	:	: P	:
17440-28-0	Thallium :	0.90	U:	F	<u>r</u>
17440-62-2	Vanadium :	2.7	U:	: P	1
17440-66-6	Zinc :	64.1	; ß	<u> </u>	lux F
	Cyanide !		1	NR:	t 1
			_;	!	: !

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After:

COLORLESS

Clarity After: CLEAR

Artifacts:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS, INC.

Lab Code: SILVER Case No.: 12334

SAS No.:

SDG No.: MHP520

Matrix (soil/water): WATER

Lab Sample ID:

Level (low/med): LOW

Date Received: 08/16/89

% Solics:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	! ! Analyte :	:  Concentration: 	C	: : Q	! ! M	!
7429-90-5		26.31		~	<u> </u>	i   LAF
:7440-36-0_	:Antimony_		Ц.		<u>: P</u> _	ma
	Arsenic	Z.Z			LE_	2
1 <u>7440-39-3</u> _		<u> [61.9]</u>			<u> </u>	11 20 p
	Beryllium				<u> </u>	7
17440-43-9_	<u>Cadmium</u>	1.9			12_	1
1 <u>7440-70-2</u>	<u>Calcium</u>	131000		~	<u></u>	Inc
17440-47-3_	( <u>Chromium </u> )	2.9			<u>:P_</u>	:
	: <u>Cobalt</u> :		Щ		12_	;
: <u>7440-50-8</u>	: <u>Copper</u> :	(2.4)			<u>: P</u> _	المر
: <u>7439-89-6</u>	:Iron:	<u>[84.7]</u>			<u> </u>	22-0
: <u>7439-92-1</u>	Lead	0.937	B		LE_	1000
: <u>7439-95-4</u>	Magnesium:	34400 ;			<u> </u>	Int of
17439-96-5	: <u>Manganese</u> :	19.1		<u> </u>	<u> </u>	(ar
	Mercury		Πī		ΓCΛ	MASLAF
	Nickel	9.7_	<u>U</u>		<u> </u>	1080
17440-09-71	<u>Potasaium</u> :	21103		·		The of
	Selenium_;	15.27			EE_	انا <i>ن</i> ا
	Silver:	1.6	<u>П</u> Т		<u>P</u> _	· ·
17440-23-5_1	<u> Sodium;</u>	19700_¦			<u> </u>	1
	Thallium ;	<u>0.90</u> _;			E_	<b>!</b> }
: <u>7440-62-2</u> _:	<u>Vanadium</u> :	2.7_!			<u>P</u> _	1
1 <u>7440-66-6</u> 1	Zinc;	52.7_;	_:			MF
!	Cyanide;		;		NR	,
!!			_ ;	;		-

lor Before: COLORLESS

Clarity Before: CLEAR Texture:

lor After: COLORLESS

Clarity After: CLEAR

nments:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS, INC.

Lab Code: SILVER

Case No.: 12334

SAS No. 19

SDG No.: MHP520

Matrix (soil/water): WATER

Lab Sample ID:

Level (low/med):

LOW

Date Received: 08/16/89

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

1	1	<b> </b>		1	
ICAS No.	Analyte	Concentration	ici a	! M	i
1			- - <u>-</u>	!	
17429-90-5	Aluminum_		1 18	<u> 12</u> _	
<u>7440-36-0</u> _	<u>Antimony</u>	199	<u> </u>	<u> 12</u> _	, lunie
<u>  7440-38-2</u>	<u>'Arsenic</u>	540	! <u>_                                   </u>	<u> </u>	. !
<u>  7440-39-3</u>	Barium	788	1_1 <u>B</u>	<u> </u>	KHF
<u>7440-41-7</u>	Beryllium	[2.1]	<u>B(</u>	<u> </u>	
1 <u>7440-43-9</u>	Cadmium_	127_	1_ <u>13</u>	<u> 12</u>	LAF
1 <u>7440-70-2</u>	Calcium_	246000	<u> </u>	<u> </u>	LAF
1 <u>7440-47-3</u>	Chromium .	68.5	! <u> </u>	12_	1
17440-48-4	Cobalt	[28.4]	। हर । ंत	<u>: P</u> _	LAF
17440-50-8	Copper	1260	1_18	18	luir"
: 7439-89-6	Iron	89300	1 13	18	LAF
17439-92-1	Lead	17900	ال 13	; P_	LAF
17439-95-4	Magnesium	67100	1 13	: 2	! utr
7439-96-5	Manganese	<u>  2950                                   </u>	1 13	<u>: P</u>	المائم
17439-97-6	Mercury	36.0	I IN R	LCY	THE CALL
17440-02-0	Nickel	57.3	! _ !	<u> </u>	
7440-09-7	<u>Potassium</u>	9770	2	<u> </u>	lini =
17782-49-2	Selenium	[43.9]	BINAME	IF_	luiti 🎾 🗀
7440-22-4	Silver	117	1 7	<u>; p</u> _	List F
17440-23-5	Sodium	42700	; _ <u> </u>	IP_	1
17440-28-0	Thallium	[4.2]	E I W	IF.	} LHF
17440-62-2	Vanadium	121	·	<u> </u>	1 4
17440-66-6	Zinc	17700	13	<u>: P</u>	luif
	Cyanide :			INR	1 .
				!	

Color Before: COLORLESS Clarity Before: CLEAR

Color After:

COLORLESS

Clarity After: CLEAR Artifacts:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS, INC.

Lab Code: SILVER Case No.: 12334

SDG No.: MHP520

Matrix (soil/water): WATER

Lab Sample ID:

Level (low/med): LOW

Date Received: 08/16/89

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

,					
i 1040 M-	; 1 A 7	i 16		: M	
CAS No.	: Analyte :	Concentration:	ic: Q	1 3 1	
1			i _ i	P- HAR	
7429-90-5		<u> </u>			
	<u>Antimony_</u>	<u></u>		- <u>-</u> 3_	_
	Arsenic	[5.6]		1F_102	<b>S</b> cons
<u> 7440-39-3</u>	Barium	<u> </u>		<u> </u>	en la
1 <u>7440-41-7</u>	:Beryllium:			<u>:P_</u> ;	9
17440-43-9	Cadmium_	<u> </u>	! <u>_                                   </u>	<u> </u>	
1 <u>7440-70-2</u>	Calcium_	211000	<u> </u>	1P lar	
17440-47-3	Chromium_	2.8	<u> </u>	<u> 12_</u> 1	
17440-48-4	Cobalt :	[5.3]	181 W	1P_lun	
	Copper	r 1.27	B  us	IP love	
	Iron	55.17		TP 1995	1
	Lead :	34.6		F 25	<b>5</b> _87
	Magnesium	41400	1 1 18	IP June	39
17439-96-5	Mandanese			TP LHE	
17439-97-6	Mercury			A	سر میں
	Nickel		111		<b>3</b> -011
	<u>Potassium</u>				<b>*</b>
7782-49-2	Selenium :		BINW		~>
7440-22-4	Silver	1.6		<u> </u>	
	;20dinw;	41200		 :	
		0.90		iF_;	
	Thallium :			iP luir	
<u>  7440-62-2</u>	<u>Yanadium</u>	3.87			
<u>7440-66-6</u>	<u>  Zinc </u>	1730_ ;		<u>IP</u> luié	
ļ <u>'</u>	Cyanide			<u> </u>	
· ·		;	_ '	! ;	

lor Before: COLORLESS

Clarity Before: CLEAR Texture:

lor After: COLORLESS

Clarity After: CLEAR

Artifacts:

mments:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS, INC.

Contract: 68-08-0074

MHP529

Lab Code: SILVER

Case No.: 12334

SAS No.:

SDG No.: MHP520

Matrix (soil/water): WATER

Lab Sample ID:

Level (low/med):

LOW

Date Received: 08/16/83

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

					:	1
ICAS No.	Analyte	:Concentration:	C	Q	M	;
!	1	 	_		!	•
<u>7429-90-5</u>	Aluminum_	[24.9]	표.		<u> </u>	1416
<u>7440-36-0</u> _	Antimony:	19.9			<u></u>	1
: <u>7440-38-2</u>	Arsenic	2 <b>.</b>	Ш		E_	300
: <u>7440-39-3</u>	Barium	1.3	Ц.		<u> </u>	
7440-41-7	Beryllium	1.1	<u>U</u>		<u>: P_</u>	P
:7440-43-9	Cadmium_	1.8			<u> </u>	1
17440-70-2	Calcium_	(214):	图	<u> </u>	<u> </u>	luaf
17440-47-3	Chromium	2.8	<u>U</u>		<u> </u>	1
17440-48-4	Cobalt	2.6	Щ		<u> </u>	1
17440-50-8	Copper	1.1	<u>u</u>		12_	
7439-89-6	Iron	<u> </u>	E	Luz ·	<u> </u>	Lite
7439-92-1	Lead	<u> </u>	B'	L FIN XVI	E_	1
7439-95-4	Magnesium	<u>\43.7</u> 3	B	(GB)	<u>P_</u>	KA F
17439-96-5	: <u>Manganese</u>	11.4)	B	المنك	<u>P</u> _	يسات
1 <u>7439-97-6</u>	Mercury	0.20	Ų	NR	CV	132 CAFE
17440-02-0	Nickel	9.7.	<u>U</u>		2_	000
17440-09-7	Potassium	273	Ų,		2	; ************************************
7782-49-2	Selenium	1.2	<u>U</u>	NM★	E	: Air
: <u>7440-22-4</u>	Silver	1.6	ַ עַ		2	į.
: <u>7440-23-5</u>	Sodium	147.5	<u> </u>	いと	2_	LAF
17440-28-0	Thallium	0.90 ;	U.		E_	<u>:</u>
:7440-62-2	Vanadium	2.7	<u>ַנ</u> ַנַי		2_	i I
17440-66-6	Zinc	12.63	BY	uB	2	تنهق إ
1	Cyanide		_ :		NR	t å
			_ ;			;

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After:

COLORLESS

Clarity After: CLEAR

Artifacts:

EPA SAMPLE NO.

1

INDRGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS, INC.

61-68-0074

Lab Code: SILVER Case No.: 12334

SAS No.:

SDG No.: MHP520

Matrix (soil/water): WATER

Lab Sample ID:

Level (low/med): LOW

Date Received: 08/16/89

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.   Analyte   Concentration   C   Q   M	,					
	1040 No	; ;	i 	; ; ; ;	1 24	i r
7440-36-0   Antimony   19.9   U    1P   17440-39-2   Arsenic   2.3   U    1P   1P   1P   1P   1P   1P   1P	icma Na.	. Analyte		ائا ہا: ا	1 (1)	1
7440-36-0   Antimony   19.9   U    1P   17440-39-2   Arsenic   2.3   U    1P   1P   1P   1P   1P   1P   1P	17400 00 0	·		<u>  _                                   </u>	•;=-	1 1: a.E
7440-39-2   Arsenic   2.3   U						i LH'
7440-39-3   8arıum	. =					nos
7440-43-9   Cadmium						09/1
7440-43-9   Cadmium						10889
17440-47-3   Chromium   2.8   U    IP						1
7440-48-4   Cobalt   2.6   U    IP						LAF
7440-50-8   Copper						1
7439-89-6   Iron	: <u>7440-48-4</u>	: <u>Cobalt</u> :				1
17439-92-1   Lead	: <u>7440-50-8</u>	: <u>Copper</u> :		·		١
7439-95-4   Magnesium	1 <u>7439-89-6</u>	: <u>Iron</u> :				200
7439-96-5   Manganese   (2.5)   8   4.0   1P   10   17439-97-6   Mercury   0.20   U N	17439-92-1	Lead:				المرابع المالية
7432-27-6   Mercury	17439-95-4	! <u>Magnesium</u> :	<u>[29.07</u> ]	<u> </u>		
17440-02-0   Nickel   9.7   U    1P   17440-09-7   Potassium   273   U    1P   17782-49-2   Selenium   1.2   U N*   1F   17440-22-4   Silver   23.8   13   1P   46   17440-23-5   Sodium   13.2   U    1P   17440-28-0   Thallium   0.90   U    1F   17440-62-2   Vanadium   2.7   U    1P   17440-62-2   Vanadium   2.7   U    1P   1P   17440-62-2   Vanadium   2.7   U    1P   1P   1P   1P   1P   1P   1P	17439-96-5	<u>Manganese</u>	(2.5)	<u> </u>	<u>: P</u> _	
1.782-49-2   Selenium	17439-97-6	Mercury	0.20	IUIN R	<u>:CV</u>	1 PAB LAF
1.782-49-2   Selenium	17440-02-0	Nickel :	9.7	<u> </u>	16	1/appa
17440-22-4   Silver   23.8   13   19   46   17440-23-5   Sodium   13.2   U1   18   17440-28-0   Thallium   0.90   U1   18   17440-62-2   Vanadium   2.7   U1   18   18   18   18   18   18   18	17440-09-7	Potassium	273	<u> </u>	<u> </u>	109
17440-23-5   Sodium	17782-49-2	Selenium_	1.2	UIN*	1F_	; i
17440-28-0 (Thallium ) 0.90 (UI )E ( 17440-62-2 (Vanadium ) 2.7 (UI 19 )	17440-22-4	Silver	23.8	13	<u>:P</u>	- المنتا
(7440-62-2 (Vanadium )2.7_(U11P )	17440-23-5	Sodium	13.2	UI	<u>: P</u> _	1
	17440-28-0	Thallium :	0.90	U;	; F_	1
17440-66-5  Zinc   [6.5] B W 1P  AF	17440-62-2	Vanadium :	2.7	U:	<u> </u>	1
	17440-66-6	Zinc	[6.5]	B   Cuis	<u>: P</u>	عهدا
Cyanice	;				INR	;
	·				;	( ;

lor Before: COLORLESS

Clarity Before: CLEAR Texture:

ior After: COLORLESS

Clarity After: CLEAR

Artifacts:

mments:

EPA SAMPLE NO.

1 INORGANIC ANALYSIS DATA SHEET

68-68-0074

Lab Name: SILVER VALLEY LABS, INC.

SAS No.:

Lab Code: SILVER

Case No.: 12334

SDG No.: MHP520

Matrix (soil/water): WATER

Lab Sample ID:

Level (low/med):

LOW

Date Received: 08/16/89

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	i I Amnivem	:  Concentration	: : :C: : 0	M	•
ICMS NO.	, Milalyte	Concentration	!!	!	!
7429-90-5	: Aluminum	23.0		; p-	Liver
	Antimony	19.9		- P	!
~	Arsenic	12.97		F	1000
17440-39-3	Barium	137.37		17	IMIT OF THE PARTY
	:Beryllium:			10	A PAR
17440-43-9	:Cadmium	1.8		TP-	}
	Calcium	321000	: = <del>-</del>	†P	· !
17440-47-3	Chromium			ip-	· !
	Cobalt		18 LB	iP-	!! ac
	Copper	11.27			llař
	Iron	503	1	; P	ı, ası
			UINWX	†F	1075
	Lead		l l R		Uti
	: <u>Magnesium</u> :		! <u>- 1 5</u>		iose - las
	Manganese				- LAF
	Mercury	<u>0.20</u>		ŤĞΖ	238
	Nickel		¦ _ †	<u> </u>	950
	<u>Potassium</u>			<u> </u>	
	Selenium_		<u>                                      </u>	<u></u>	line >
~~~~~~	Silver	1.6		<u> </u>	;
	Sodium		_18	<u></u>	¦፡ <i>ነ</i> ነና
	: <u>Thallium</u> :	<u>0.90</u> _		<u>LE</u> _	i
17440-62-2	<u> Yanadium_</u>		<u> </u>	<u> </u>	¦ , <u>,                                  </u>
/ <u>7440-66-6</u> _	: <u>Zinc</u> :	<u> </u>	<u> </u>		¦ _}(°
	Cyanide:			<u>INR</u>	į.
1				·	1

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After:

COLORLESS

Clarity After: CLEAR Artifacts:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS, INC.

Contract: 68-0074

MHP533

Lab Code: SILVER

Case No.: 12334

SAS NO

SDG No.: MHP520

Matrix (soil/water): WATER

Lab Sample ID:

Level (low/med):

LOW

Date Received: 08/16/89

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	: Analyte	,  Concentration:	מינטו	M	!
!	i milatyve i	i !	!!	!	• ! •
7429-90-5	! Aluminum	317	-   <del></del>	; =-	! اسمالا
	Antimony	19.9		ÌP.	!
	Arsenic			; F	300
~~~~~~	Barium	782.27		ip-	000
	Beryllium		; ====================================	<u> </u>	LIN'S PA
	Cadmium	i			י אני'ן
	Calcium	369000		75-	Luis
17440-47-3		2.8		<u> </u>	!
	Cobalt	5.67		; ; ; ; ; ;	! !≀4€
	. =	[			じまで
	Copper Tron	10200	1 1 R	<del></del>	iuti
		68.2	N8 (B)		325
	Lead	~~		75	Par
	Magnesium:			<del>       </del>	iline / p
	Manganese				1-41°
	Mercury	0.20 9.7			1
	Nickel			<u> </u>	•
<u>7440-09-7</u> _	<u>Potassium</u>		BINK* a13		) 1 -}≠
: <u>7782-49-2</u> _; :7440-22-4	Selenium	1.8	~	<del></del>	, 511
( <u>7440-22-4</u> ) (7440-22-4)	<u>Silver</u>				1 ! = } F
1 <u>7440-23-5</u> _1	Sodium				,
<u>7440-28-0</u>     7440-63-3	Thallium :	0.90 3.7		<u>:E</u> _	1 2
<u>7440_62_2</u> _	<u>Vanadium</u> :			<u> </u>	1
; <u>7440-66-6</u> _;	Zine	759_		P	
;	Cvauide;	i		<u>LNR</u>	i t
· ·	i		- '	' <b>_</b> _	1

dor Sefore: YELLOW

Clarity Before: CLOUDY

Texture:

lor After: YELLOW

Clarity After: CLOUDY

Artifacts:

mments:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS, INC.

Contract; 68 85 5671

MHP534

Lab Code: SILVER

Case No.: 12334

SAS No.:

SDG No.: MHP520

Matrix (soil/water): WATER

Lab Sample ID:

Level (low/med):

LOW

Date Received: 08/16/89

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

1040 No	; • • • • • • • • • • • • • • • • • • •			1 54	1
CAS No.	: Analyte :	Concentration:	ici a	¦ M	i ,
17429-90-5	!	744.6	1   B   UB	-¦ <sub>P</sub> -	1
		20.1			1 Uti-
17440-36-0 17440-36-0				- <u>†</u> E-	1 1917
	Arsenic		1	- <u>+</u> E-	38
	Barium 1	156.71		<u>-÷₽</u> -	برجه
. =	Beryllium		<u> </u>	<u> </u>	( <del>49</del>
	Cadmium	10.3			;LAF
~	<u>Calcium_</u>	205000	¦_ <u>↓₿</u>		CHF
† <u>7440-47-3</u>	Chromium	2.8_	¦ <u>∐ i</u>	<u> : 2                                  </u>	;
: <u>7440-48-4</u>	Cobalt	<u> </u>	B' UB	<u> </u>	LUF
17440-50-8	Copper	[2.7]	BL.B.	<u> </u>	ا الما
: <u>7439-89-6</u>	Iron	[31.5]	BLAB	<u> </u>	1-15
7439-92-1	Lead	(1.4]	BINX WA	J:F	SIHE
7439-95-4	Magnesium	40400	18	12	LUIF 39
1 <u>7439-96-5</u>	<u>Manganese</u>	1070	16	<u> </u>	LAF
1 <u>7439-97-6</u>	Mercury	0.20	UINR	ICV	320 CAF
7440-02-0	Nickel	9.7	U	; P	1 200
7440-09-7	Potassium	3180]	<b>B</b>   5.00	! P	عرب ا
	Selenium :		B! N* 613	<u> </u>	kaé 🗡
	Silver	1.6	Ü	- F	
:7440-23-5	Sodium	41900	13	; P	line
	Thallium :	0.90	U.	; F	t 1
7440-62-2	Vanadium	2.7		T P	:
	Zinc	2970		TP	_
	Cyanide	1		INR	! !
!					? •

Color Sefore: COLORLESS

Clarity Before: CLEAR

Texture:

Color After:

COLORLESS

Clarity After: CLEAR

Artifacts:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS, INC.

Contract: 68-68-6974

MHP525

Lab Code: SILVER Case No.: 12334

SAS NO P

SDG No.: MHP520

Matrix (soil/water): WATER

• \*\*\*\*\*\*

Lab Sample ID:

Level (low/med):

LOW

Date Received: 08/16/89

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

	<del></del>					
:  CAS No	: ! Analyta :	  Concentration	   C	( ( ()	; : M	<u> </u>
1000 1401	, milaryce		!	!	!	!
7429-90-5	Aluminum	[61.1]	Ē	1.3	; p-	!UAF
17440-35-0		19.9			ī P	1
17440-38-2		75.6]			TF-	MAB! HE
17440-39-3		75.07			<u> </u>	29/2 wif
	:Beryllium				ĪP.	9/05/89
		10.3			<del> </del>	
	:Cadmium				~	
17440-70-2_		`			<u> </u>	NAP .
	<u>Chromium</u>	2.8			- 루-	1
	<u> Cobalt</u>	[3.5]			<u> </u>	
	:Copper:	[4. <u>2</u> ]			<u> </u>	1 -11-
: <u>7439-89-6</u>	: <u>Iron</u> :	: <u>496</u> _;	:		<u>: P</u> _	320
17439-92-1	Lead	25.2			E_	المالي والمحالة
17439-92-1 17439-95-4	: <u>Lead</u> : <u>Magnesium</u> :				<u>: F</u> _	المراجعة المالية
7439-95-4		40300		<u> </u>		!ur
: 7439-95-4 : 7439-96-5	<u>Magnesium</u>	40300   		ਰ ਨ	<u> </u>	luŕ
17439-95-4 17439-96-5 17439-97-6	Magnesium   Manganese   Mercury	40300   		B B <b>X</b> R	:P :CV	Luit Maguar
17439-95-4 17439-96-5 17439-97-6 17440-02-0	Magnesium     Manganese     Mercury     Nickel	40300 1080 0.20 10.6)	逐 门	3 3 X R	<u> </u>	MAGUAF
17439-95-4 17439-96-5 17439-97-6 17440-02-0 17440-09-7	Magnesium     Manganese     Mercury     Nickel     Cotassium	40300 1080 0.20 10.6)	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	B B N R	: P : C : P	MAGUAF
17439-95-4 17439-96-5 17439-97-6 17440-02-0 17440-09-7 17782-49-2	Magnesium     Manganese     Mercury	40300 /1080 0.20 /10.6) 		B N. R Cub NW*		MAGUAF
17439-95-4 17439-96-5 17439-97-6 17440-02-0 17440-09-7 17782-49-2 17440-22-4	Magnesium     Manganese     Mercury     Nickel     Potassium     Selenium     Silver	40300 /1080 0.20 /10.6) /33501 -1.2 1.6		B B N.R Cus Nw*		MAGUAF
17439-95-4 17439-96-5 17439-97-6 17440-02-0 17440-09-7 17782-49-2 17440-22-4 17440-23-5	Magnesium     Manganese     Mercury     Nickel     Potassium     Selenium     Silver     Sodium	40300 /1080 0.20 /10.6\ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		3 N. R. Cub NW*		MAGUAF
17439-95-4 17439-96-5 17439-97-6 17440-02-0 17440-03-7 17782-49-2 17440-22-4 17440-23-5 17440-28-0	Magnesium Manganese Mercury Nickel Potassium Selenium Silver Sodium Thallium	40300 1080 0.20 10.6 \(\) 3380 1.2 1.5 41900 0.90		B B N R Cub NW*	: P : P : C : P : : P : : P	MAGUAF
17439-95-4 17439-96-5 17439-97-6 17440-02-0 17440-03-7 17782-49-2 17440-23-5 17440-28-0 17440-62-2	Magnesium Manganese Mercury Nickel Potassium Selenium Silver Sodium Thallium	40300 1080 0.20 10.6 3380 1.2 1.5 41900 0.90 2.7		B B N R Cub NW*	P C P C P P F P F P F P F P F P F P F P	MA LAF
7439-95-4    7439-96-5   7439-97-6   7440-02-0   7440-09-7   7782-49-2   7440-22-4   7440-23-5   7440-62-2   7440-66-6	Magnesium Manganese Mercury Cickel Cotassium Selenium Silver Sodium Thallium Yanagium	40300 1080 0.20 10.6 3380 1.2 1.5 41900 0.90 2.7		B B N R Cub NW*	P C P C F P F P P F P P F P P P P P P P	100 LAF
7439-95-4    7439-96-5   7439-97-6   7440-02-0   7440-09-7   7782-49-2   7440-22-4   7440-23-5   7440-62-2   7440-66-6	Magnesium Manganese Mercury Nickel Potassium Selenium Silver Sodium Thallium	40300 1080 0.20 10.6 3380 1.2 1.5 41900 0.90 2.7		B B N R Cub NW*	P C P C P P F P F P F P F P F P F P F P	100 LAF

lor Before: COLORLESS

Clarity Before: CLEAR

Texture:

or After: COLORLESS

Clarity After: CLEAR

Artifacts:

nments:

EPA SAMPLE NO.

Case No.: 12334

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS, INC.

SAS No.:

SDG No.: MHP520

Matrix (soil/water): WATER

Lab Sample ID:

Level (low/med):

Lab Code: SILVER

LOW

Date Received: 08/16/89

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

					_
				1	
ICAS No.	: Analyte :	Concentration	C: Q	ŀΜ	
i	·		· _ ·	i	i
17429-90-5		<u>[49.5]</u>		<u>:2</u> _	いもん
: <u>7440-36-0</u>		19.9		<u> 12</u> _	3-
: <u>7440-38-2</u>	' <u>Arsenic</u>		: U 1: 7M	<u>i</u> E_	C 270
17440-39-3	Barium	[ <u></u>	Br UB	12_	iumo),
17440-41-7	:Beryllium:	1.1	<u> </u>	<u>: P</u> _	المحمد
17440-43-9	:Cadmium:	13.3	1 1 3	<u>: 2_</u>	luif
17440-70-2	(Calcium	228000	1 B	12_	145
17440-47-3	Chromium	2.8	: U :	12	1
17440-48-4	:Cobalt		I III Salid	P	i.Hr
17440-50-8	Copper	3.9	Blus	IP	iulf
17439-89-6		346		I P	المكالية إ
17439-92-1	~~~~~~	8.8	LAX P	ĪF	
17439-95-4		41800	18	IP_	LAP 29
17439-96-5				; P	iun <u>í</u>
17439-97-6		0.20	IUINR	TCV	3 PLAT
17440-02-0		9.7		IP.	
17440-09-7	:Potassium:	3630]		; =	
17782-49-2			BINM* W		,
17440-22-4	Silver	1.6		<u> </u>	!
17440-23-5	Sadium	48000	1 13	٦ [	144
	Thallium	0.90		F	1
17440-62-2	Vanadium	2.7		; P	1
17440-66-6	~	3880		; P	ľaŕ
	Cyanide			INR	
				1	1
~~~~~~~	~~~~~				

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After:

COLORLESS

Clarity After:

CLEAR

Artifacts:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS, INC.

Lab Code: SILVER Case No.: 12334

SDG No.: MHP520

Matrix (soil/water): WATER

Lab Sample ID:

Level (low/med):

LOW

Date Received: 08/16/89

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

		,	! !			!
CAS No.	Analyte	Concentration	ic:	•	M	, 1
}	- <i>,</i>		: :	:		:
17429-90-5	Aluminum	29.0]	BIU		P_	falt
17440-35-0	Antimony	19.9	: U ;	;	5	; _
17440-38-2	Arsenic	2.3			F	0325 10325
17440-39-3	Barium	[1.7]		i	7	CAP BELL
	Beryllium	1.1	i Ūː		9	; <b>**</b>
17440-43-9	Cadmium	1.9	Ū.		P	!
17440-70-2	Calcium	11097	Biue	;	6	luri
	Chromium :	2.8	UI.	:	<u>,</u>	1 1
17440-48-4	Cobalt	2.6	UI	į	P	r I
17440-50-8	Copper :	1.1	U!	i	Ē_	1 !
17439-89-6	Iron	(33.47)	B1 W	3 ;	7	101
17439-92-1	Lead :	v 1.37	BINW	1 ( 11 h	F_	1000
17439-95-4	Magnesium	38.67	814	<u> ነ</u>	P	المات المات
17439-96-5	Mandanese:	12.01	81 .		5	i uni
	Mercury :	0.20			$\overline{\mathbb{C}}\overline{\mathbb{V}}$	" Spage
17440-02-0	Nickel !	9.7.	U:		2_	, 380
17440-09-7	Potassium:	279_	U:		2	
17782-49-2	Selenium :	1.2	UINX		E_	, 7
17440-22-4	Silver	1.6	<u>u:</u>		2_	<b>!</b>
17440-23-5	Sodium:	41.87	<u> 21 m3</u>	<u></u>	P	1446
17440-28-01	Thallium :	0.90	<u>U:</u>		E_	}
17440-62-2	Vanagium !		∩:		2_	•
17440-66-61	Zinc:	12.97	<u>B1 50</u>		2_	1410
11	Cyanide!				NR :	
1	!		_ ;		<sup> </sup>	l

lor Before: COLORLESS

Clarity Before: CLEAR

Texture:

ior After: COLORLESS

Clarity After: CLEAR

Artifacts:

mments:



EPA SAMPLE NO.

1

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS, INC.

Contract; 50 53 5071 |

MHP538

Lab Code: SILVER

Case No.: 12334

SAS No.:

SDG No.: MHP520

Matrix (soil/water): WATER

Lab Sample ID:

Level (low/med):

LOW

Date Received: 08/16/89

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

!	1	1	: :		4	1
ICAS No.	! Analyte :	Concentration	C	a	M	:
1	1	 	ا _ ا		·	1
17429-90-5	Aluminum :	<u> </u>			<u> </u>	1245
17440-36-0	Antimony_	20.f.	: ₹	<u> </u>	12_	। ध्रीर्व
17440-38-2	Armenic	: <u>2.3</u> _	: <u>∪</u> .	7 <u>w</u>	LE_	385
1 <u>7440-39-3</u>	:Barium ::	51.1	E	ius	<u>: 22_</u>	202
1 <u>7440-41-7</u>	Bervllium	1.1	: U:		LP_	وهم ا
17440-43-9	:Cadmium :	13.5	: _ <u>:</u>	<u> </u>	<u> </u>	luif /
17440-70-2	Calcium	218000	l _ <u>1</u>	3	12	luir
17440-47-3	Chromium	2.8	<u>: آيا</u> ا		<u> </u>	!
17440-48-4	:Cobalt :	(5.3)	B	his	P	Laf
17440-50-8	Copper	11.57	B	لراغ دراغ	, p	line
17439-89-6	Iron	43.7	B	40	; P	1644
	Lead	0.90	: ŪĪ	L KWI	F	20 nr
17439-95-4	: Magnesium :	39900	: -;	3	; P	Luit 89
17439-96-5	: Manganese	/1330			[P]	Hair /
17439-97-6	Mercury :	0.20	Ū		CV	: 390LA
	Nickel		: Ū ;		; p	200
17440-09-7	: Potassium	3570 - 1	BI			luni Pag
17782-49-2	Selenium :	18.0				sasti
17440-22-4	:Silver	1.6			P	! ;
	Sogium		= -		P	Lurr
17440-28-0	Thallium	0.90			F	) i
7440-62-2	:Vanadium :	2.7			7	!
	:Zinc	3720			P -	ilut if
	C <u>vanioe</u>		<u>-</u> -		NR	
!			<del>-  </del>		1	- 1 1
·	·					

Color Before: COLORLESS

Clarity Before: CLEAR

Taytura

Color After:

COLORLESS

Clarity After: CLEAR

Artifactes

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS, INC.

Lab Code: SILVER Case No.: 12334

SAS Na.

SDG No.: MHP520

Matrix (soil/water): WATER

Lab Sample ID:

Level (low/med): LOW

Date Received: 08/16/89

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

					t
CAS No.	   Analyte	Concentration	ic: a	M	1
			! ! ! !	!	1
7429-90-5	Aluminum	127.07	1 21 W	<u> P</u>	14F
7440-36-0	Antimony :	19.9	: <u>U.L</u>	<u>: 2_</u>	3-
7440-38-2	Arsenic :	2.3	: U : NW	LE_	0970
7440-39-3	Barium :	1.3	ш	<u> </u>	مهرجوه ا
7440-41-7	Beryllium	1.1	:UI	<u> </u>	, <b>"</b>
7440-43-9	Cadmium	1.3	: [] [	<u>: P_</u>	1
7440-70-2	Calcium	(90.8)	BIUB	<u> </u>	iun=
7440-47-3		2.8	:U:	: 2	:
7440-48-4		(2.71)	EM un	<u> </u>	laf
7440-50-8	Copper :	1.1	U.	: 72	;
7439-89-6		[32.2]	B   415	: P_	155
7439-92-1	Lead :	0.90	L KWA LU	E_	1
7439-95-4	Magnesium	127.81	\$1 WP	<u> </u>	146 -19
7439-96-5 ;			Blus	: P	LINE
7439-97-6			UINR	CY	OF LAT
7440-02-0 ;		9.7		<u> </u>	LAF OF S
7440-09-7	Potassium!	14371	ಶೆಗಿತ	2_	محم علايا
7782-49-2	Selenium !	1.2	U   N₩*	E_	lut
7440-22-4	Silver !	1.6		: 2_	1
7440-23-5	Sodium !	[13.3]	8153	<u> </u>	lent
7440-28-0_;	Thallium !	0.90	UI	<u> </u>	1
7440-62-2:	Vanadium :	2.7_1	<u>u.</u>	<u>P_</u>	i.
7440-66-6	Zinc	1.3	ПТ	<u> </u>	l i
	Cyanide :			NR	;
			_		1

lor Before: COLORLESS

Clarity Before: CLEAR Texture:

lor After: COLORLESS

Clarity After: CLEAR

nments:

# REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW \*\*\*guideline references are from Contract #787\*\*\*

Case No.: 12334 TDD No.: F08-8909-08

Site: Richardson Flats

Contractor Laboratory: Keystone-Houston

Data Reviewer: Annette Sackman Date of Review: 10-3-89

Sample Matrix: 19 Low Waters

Analysis: Mercury

Sample Nos.: MHP520, MHP521, MHP522, MHP523, MHP524, MHP525, MHP526,

MHP527, MHP528, MHP529, MHP530, MHP532, MHP533, MHP534,

MHP535, MHP537, MHP538, MHP539, MHP540

- (X) Data are acceptable for use.
- ( ) Data are acceptable for use with qualifications noted.
- ( ) Data are preliminary pending verification.
- ( ) Data are unacceptable.

Action required by DPO?

No X Yes The following items require action:

Action required by project officer?

No X Yes

The following are our findings:

All requirements were met for the mercury analysis except Form VII - Laboratory Control Sample was not included. Since the LCS was analyzed and reported in the raw data and met all other requirements, no action is taken.

### Inorganic Data Completeness Checklist

- X Inorganic analysis data (Form I)
- X Initial calibration and continuing calibration verification (Form IIA)
- CRDL standard for AA and ICP (Form IIB)
- X Blanks (Form III)

ICP interference Check sample (Form IV)

X Spike sample recovery (Form VA)

Post digestion spike sample recovery (Form VB)

- X Duplicates (Form VI)
- X Laboratory control sample (Form VII)
  Standard addition results (Form VIII)
  ICP serial dilutions (Form IX)
- X Holding times (Form X)
- X Instrument detection limits-quarterly (Form XI)
- X ICP interelement correction factors-quarterly (Form II)
- X ICP linear ranges-quarterly (Form XIII)

Raw data for interference checks

- X Raw data for calibration standards
- X Raw data for blanks

Raw data for CRI and/or CRA

- X Raw data for samples
- X Raw data for duplicates
- X Raw data for spikes
- X Traffic reports

### Contract Compliance

- I. Initial and Continuing Calibration Verification (ICV and CCV) (guidelines pg. E-4, Form IIA)
  - Was instrument calibrated daily and each time it was set up? yes X no
  - Were instruments calibrated using 1 blank and several standards? ves X
  - Were calibration verifications within 90-110%? ves X
  - Were continuing calibrations run at 10% frequency? yes X
- Were the raw data correctly transcribed onto Form IIA? yes X Comments: All requirements met.
- II. CRDL Standards for ICP (CRI) and/or AA (CRA) (guidelines pg. E-6, Form IIB)
  - For ICP analysis, were standards (CRI) @ 2x the CRDL or the IDL (whichever was greater) analyzed at the beginning and the end of each sample run, or at a minimum of twice/8 hour shift, whichever was more frequent?

no yes

- For furnace AA analysis, were standards (CRA) analyzed at the beginning and the end of each sample run, or at a minimum of twice/8 hour shift, whichever was more frequent? yes
- Were the CRI and/or CRA standards analyzed after the ICV? yes
- Were these data reported on Form IIB? no
- Were the raw data correctly transcribed onto Form IIB? yes no

Comments: Not required.

### III. Blanks (guidelines pg. E-6, Form III)

- 1. Was the initial calibration blank (ICB) analyzed immediately after the initial calibration verification (ICV)?

  yes X no
- 2. Was a continuing calibration blank (CCB) analyzed immediately after each continuing calibration verification (CCV)?

  yes X no
- 3. Was a preparation blank (PB) analyzed at a frequency of at least 1 in 20 samples?

  yes X no NA
- 4. How many elements were detected above the CRDLs? 0 (if 0, go to question 5)
  - 4a. How many elements were detected in the blanks at greater than one-half the amount detected in any sample?
- 5. Were raw data correctly transcribed onto Form III?
  yes X no
  Comments: All requirements met.

### IV. ICP Interference Checks (ICS) (guidelines pg. E-7, Form IV)

- Was the ICS analyzed twice per 8 hour shift? yes no
- 2. Were the ICSs analyzed before and after samples?

  yes

  no
- 3. Was any massive interference detected?

  yes

  no
- 4. Were the ICSs within  $\pm 20\%$  mean value? yes no
- 5. Were raw data correctly transcribed onto Form IV?
  Comments: Not required.

- V. Spike Sample Analysis (S) (guideline pg: E-8, Form V)
  - Were spikes analyzed at a frequency of 1 in 20 samples? yes X no
  - 2. Were spike recoveries correctly calculated?

    yes X no

$$x$$
 recovery =  $\frac{(SSR - SR)}{SA} \times 100$ 

SSR = Spiked Sample Result

SR = Sample Result

SA = Spike Added

- 3. Were spike recoveries within the range of 75-125%? yes X no
  - 3a. For recoveries outside this range, were associated data flagged "N" by the laboratory on Forms I and V?

    yes no NA X
  - (an exception if granted where the sample concentration is >4X
     the spike concentration)
  - 4. Were raw data correctly transcribed onto Form V?

    yes X no
- \* Refer to page E-9 (SOW 787) for information regarding the amount of spike to be added for each analyte and for other information about the Spike Sample Analysis.

Comments: All requirements met.

- VI. Duplicates (D) (guidelines pg. E-11, Form VI)
  - 1. Were duplicates analyzed at a frequency of 1 in 20 samples?

    yes X no
  - Were RPDs correctly calculated?
     yes X no

$$RPD = \frac{S - D}{(S + D)/2} \times 100$$

S = Sample

D = Duplicate

- 3a. For sample concentrations >5x the CRDL, were RPDs ±20%? (limits of ±35% apply for soil/sediment/tailings samples)

  yes X no NA
- 3b. For sample concentrations >5x the CRDL, did duplicate analysis results fall outside the control window of ± the CRDL?

  yes no X NA
- 3c. Where the RPDs exceeded the control limits, were the data flagged '\*' on Forms I and VI by the laboratory?

  yes no NA
- 4. Were raw data correctly transcribed onto Form VI? yes X no
- \* Other Considerations:
- Field blanks cannot be used for duplicate analyses
- Duplicates must be analyzed for each analytical method

Comments: All requirements met.

- VII. Laboratory Control Sample (LCS) Analysis (guideline pg. E-12, Form VII)
  - 1. Was an LCS analyzed for every sample delivery group or batch of samples, whichever was more frequent? yes X no
  - 2. Were recoveries within the 80-120% limit?

    yes X no
    - -if the recoveries were outside this range the analysis must be terminated, the problem corrected and the previous samples associated with that LCS redigested and reanalyzed.
  - 3. Were the raw data correctly transcribed onto Form VII? yes no X

Comments: Form VII was not included in the data package, however, the LCS was analyzed and met contract requirements, therefore, no action is taken.

## VIII. Furnace Atomic Absorption (AA) QC Analysis (guidelines pg. E-14, Form VIII)

1. Does the raw data package contain absorbance values for two injections per sample, the average values and the relative standard deviation (RSD)?

yes

no

 For analyte concentrations > the CRDL, did the RSD for the duplicate injections agree within 20%? (if yes, go to question 3)

yes

no

 $RSD = \frac{SD}{M} \times 100$ 

SD = Standard Deviation of Duplicate Injections

M = Mean of Duplicate Injections

2a. Were samples that exceeded the 20% criteria reanalyzed?

yes

no

2b. Did any reanalyzed samples exceed the 20% criteria? yes no

2c. If yes, did the laboratory flag the data of Form I with an 'M'?

yes

no

3. Was the recovery of the spike > 40%? (if yes, go to question 4).

yes

no

If no, was the sample diluted and rerun with another spike?

yes

no

4. Was sample absorbance 50% of spike absorbance?\* (if yes, go to question 5).

yes

no

\* Spike absorbance = absorbance of spiked sample - absorbance of sample.

4a. For spike recoveries between 85 and 115%, were results reported to the IDL?

yes

no

 $RPD = \frac{(SSR - SR)}{SA} \times 100$ 

SSR = Spike Sample Recovery

SR = Sample Result

SA = Spike Added

- 4b. For spike recoveries outside the 85 and 115% range, were results reported to the IDL and flagged with 'W'?

  yes no
- 5. Was spike recovery between 85 and 115%? (if no, go to question 6)
  - 5a. Were results quantified from calibration curve and reported to IDL?

yes

no

6. Was an MSA at 50, 100 and 150% of the sample absorbance analyzed?

yes

no

- 6a. Was each MSA analysis identified in the raw data along with the slope, intercept and correlation coefficient? yes no
- 6b. Were these data correctly transcribed onto Form VIII?

  yes no
- 6c. Were correlation coefficients(r) > 0.995?
  yes no
- 6d. If no, were MSAs run once more?
  yes

- If the correlation coefficients were still > 0.995, data on Form I must be from the run with the best 'r' and the data on Forms I and VII must be flagged with a '+'.

Were these criteria met?

yes

no

по

6e. Were all MSA obtained data marked with an 'S' or an S+ on form I?

yes

no

· ]:

Comments: Not required.

- IX. ICP Serial Dilution (L) Analysis (guidelines pg. E-12, Form IX)
  - 1. Was an ICP serial dilution performed on each group of samples of a similar matrix (i.e., soil, water) and concentration (i.e., low, high) or for each sample delivery group, whichever was more frequent?

yes

no

2. For elements with concentrations >10% the CRDL, did any exceed the serial dilution results by more than 10%? (if no, skip questions 3 and 4)

yes

no

% difference =  $\frac{I - S}{I}$  X 100

I = Initial Sample Result

- S = Serial Dilution Result (instrument reading X5)
- 3. Which elements had concentrations that exceeded the 10% criteria?
- 4. Did the laboratory flag these data with an 'E' on Form IX?

  yes no:
- 5. Were the raw data correctly transcribed onto Form IX? yes no

Comments: Not required.

### X. Instrument Detection Limits (IDL) (guidelines pg. E-13, Form XI)

- 1. Were IDLs reported for each analyzed element?

  yes X no
- 2. Were IDLs reported for each instrument used?

  yes X no
- 3. Did the IDLs meet the contract requirements? (refer to pg. E-13, SOW 787)

yes X no

Comments: All requirements met.

### XI. Interelement Corrections for ICP (guidelines pg. E-13, Form XII)

1. Were correction factors reported on Form XII?

yes X no

Comments: All requirements met.

### XII. Linear Range Analysis (LRA) (guidelines pg. E-14, Form XII)

- Was a linear range verification standard analyzed? yes X no
- 2. Was the results within  $\pm 5\%$  of the true value? yes no

### Holding Times -

Limits: Metals - 6 months; Hg - 30 days; Cn - 28 days.

1. Verified date of sample receipt by laboratory 7-21-89

2. Date of preparation/analyses 8-3-89

3. Were holding times met? yes X no

Analyte	Matrix	Date Sampled	Prep Date	Holding Time	Holding Time Limit/Met
Mercury	Low Water	7-18-89.	8-3-89	16 days	30 days yes

## Keystone 12334-8-5

### U.S. EPA - CLP

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Tindestrict   Tindestrict				Z		
Lab Name: KEYSTONE ENVIRONMENTAL  Lab Code: KEYTX			INORGANIC A		SHEET	EPA SAMPLE NO.
Lab Code: KEYTX						MHP520
Matrix (soil/water): WATER  Level (low/med): LOW  Concentration Units (ug/L or mg/kg dry weight): UG/L    CAS No.   Analyte   Concentration   C  Q   M	Lab Name:	KEYSTONE ENVIR	ONMENTAL	Contract:	68-W8-0005	
Level (low/med): LOW   Date Received: 07/21/89	Lab Code:	KEYTX Ca	se No.: 123	334 SAS No.	:	SDG No.: MHP520
Concentration Units (ug/L or mg/kg dry weight): UG/L    CAS No.	Matrix (so	oil/water): WAT	ER		Lab Sample	ID: 890774002
Concentration Units (ug/L or mg/kg dry weight): UG/L    CAS No.   Analyte   Concentration   C  Q   M	Level (low	v/med): LOW			Date Recei	ved: 07/21/89
CAS No.   Analyte   Concentration   C   Q   M	% Solids:	. 0				
CAS No.   Analyte   Concentration   C   Q   M		Concentrati	on Units (	ıg/L or mg/kg	dry weight):	: UG/L
CAS No.   Analyte   Concentration   C   Q   M			!			
17429-90-5   Aluminum_		CAS No.	Analyte	Concentration	ici a i	
7440-38-2   Arsenic		7429-90-5	Aluminum_		:	
7440-39-3   Barium			_		1 1 11	NR :
17440-41-7   Beryllium		17440-38-2	Arsenic		11 11	NR :
7440-43-9   Cadmium		17440-39-3	Barium		1 1 11	VR :
7440-70-2   Calcium					11 11	NR :
7440-47-3   Chromium		17440-43-9	Cadmium		1 1 11	1R
7440-47-3   Chromium		17440-70-2	Calcium		1 1 11	VR :
7440-50-8   Copper		17440-47-3	:Chromium_:		11 11	VR
7439-89-6   Iron	-					
7439-92-1   Lead		17440-50-8	Copper:		1 1 11	1R
7439-95-4   Magnesium		17439-89-6	:Iron			
7439-96-5   Manganese	•					
7439-97-6   Mercury   0.20   U						
		17439-96-5	Manganese		1 1	
		17439-97-6	Mercury:	. 0.20	10: 10	
17782-49-2   Selenium						
7440-22-4   Silver						
7440-23-5   Sodium						
7440-28-0   Thallium						
7440-66-6   Zinc						
Color Before: Clarity Before: Texture:  Color After: Clarity After: Artifacts:  Comments:						
Color Before: Clarity Before: Texture:  Color After: Clarity After: Artifacts:  Comments:						
Color After: Clarity After: Artifacts:  Comments:						
Comments:	Color Befor	e:	Clarity	Before:	Te	xture:
	Color After	:	Clarity	After:	Ar	tifacts:
	Comments:					

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### Keystone 12334-8-5

### U.S. EPA - CLP

	i Inorganic analysis data :	EPA SAMPLE NO.
Lab Name: KEYSTONE EN	VVIRONMENTAL Contract:	MHP521
Lab Code: KEYTX	Case No.: 12334 SAS No.:	SDG No.: MHP520
Matrix (soil/water):	WATER	Lab Sample ID: 890774005
Level (low/med):	LOW	Date Received: 07/21/89
%.Solids:	o	•

Concentration Units (ug/L or mg/kg dry weight): UG/L

	1	1	1 1		;	-
CAS No.	: Analyte	Concentration	!C!	Q	! M	!
!=	_ !		·!-!-		-::=-	<b>-</b> :
	Aluminum_		i i		INR	i .
	[Antimony_		i i		INR	i
	Arsenic		i i		INR	į
	Barium		1 1		INR	i
	Beryllium		1 1		INR	1
	Cadmium		1 1		INR	i
	[Calcium		1 1		! NR	i
	Chromium_		1 1		INR	i
	:Cobalt		1 1		INR	1
	:Copper		1 1		INR	
·	!Iron		1 1		INR	i
	Lead		1 1		INR	i
	Magnesium		1 1		INR	:
	:Manganese		1 1		INR	
	Mercury		U		CV	;
	:Nickel		1 1		INR	:
_	"Potassium		1 1		INR	;
	!Selenium_		1 1		INR	i
	Silver		1 1		INR	;
	Sodium		1 1		INR	1
	Thallium_				INR	;
	Vanadium_		1 1		INR	;
	Zinc		1 1		INR	;
!	[Cyanide	}			INR	!
!			.i_i_		_	. '

Color	Before:	Clarity Before:	Texture:
Color	After:	Clarity After:	Artifacts:
Commer	nts:		

## Keystone 12334-8-5

Matrix (soil/water): WATER	ab Name: K	EYSTONE ENVIR		1 ANALYSIS DATA S Contract: 6	•	0005	EPA	SAMPLE NO MHP522
Z-Solids: 0  Concentration Units (ug/L or mg/kg dry weight): UG/L    CAS No.   Analyte   Concentration   C   Q   M	t Code:	KEYTX Ca	se No.: 12	334 SAS No.:		9	DG 1	No.: MHP52
Concentration Units (ug/L or mg/kg dry weight): UG/L    CAS No.   Analyte   Concentration   C   Q   M	latrix (soi	l/water): WAT	ER		Lab Sa	ample	ID:	890774006
Concentration Units (ug/L or mg/kg dry weight): UG/L    CAS No.   Analyte   Concentration   C   Q   M	evel (low/	med): LOW			Date i	Receiv	ed:	07/21/89
Concentration Units (ug/L or mg/kg dry weight): UG/L    CAS No.	Calide:	0						
CAS No.   Analyte   Concentration   C   Q   M	.301103:	V						
CAS No.   Analyte   Concentration   C   Q   M		Concentrati	on Units O	ug/L or mg/kg d	iry we:	ight):	UG/	'L
CAS No.								
7429-90-5   Aluminum	•	1010 11	•	•	•	. :		
7440-36-0   Antimony		ICAS No.	: Analyte	:Concentration	16.	al i	m :	
		17490-00-5	141	;		'	i	
7440-38-2   Arsenic					1 1			
					1 1			
7440-41-7   Beryllium					1 1			
7440-43-9   Cadmium					1 1			
					1 1			
7440-47-3   Chromium					i i			
17440-48-4					i i			
					i i			
7439-89-6   Iron					i i			
7439-92-1   Lead								
7439-95-4   Magnesium								
17439-96-5   Manganese					1 1			
17439-97-6   Mercury		17439-95-4	:Magnesium	1	1 1			
					; ;			
7440-09-7   Potassium					: U :			
17782-49-2   Selenium		1 <b>7439-</b> 02-0	Nickel	!	1 1			
				1	1 1	l N	R :	;
7440-22-5  Sodium								
7440-28-0  Thallium_					1 1	! N	R	
7440-28-0  Thallium_		17440-23-5	Sodium	i*		١N	R :	
7440-66-6  Zinc		17440-28-0	Thallium_	<b>!</b>				
		17440-62-2	Vanadium_	1 1	1 1	l N	R :	
		17440-66-6	Zinc	<b>¦</b>	1 1	! N	R !	
Cyanide					1 1	!N	R I	

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Artifacts:

Clarity After:

Color After:

### U.S. EPA - CLP

•	1 Inorganic analysis data 9	EPA SAMPLE NO.
Lab Name: KEYSTONE E		: MHP523
Lab Code: KEYTX	Case No.: 12334 SAS No.:	SDG No.: MHP520
Matrix (soil/water):	WATER	Lab Sample ID: 890774007
Level (low/med):	LOW	Date Received: 07/21/89

Ó

Concentration Units (ug/L or mg/kg dry weight): UG/L

	<u> </u>					_
  CAS No. 	   Analyte 	Concentration	101		; : M :	;
17429-90-5	Aluminum	,	: -:		INR	1
17440-36-0			; ;	}	INR	1
17440-38-2			1 4	}	! NR	!
17440-39-3			;	}	INR	;
17440-41-7			1 1		INR	i
17440-43-9	•	•	: :	}	INR	:
17440-70-2			; ;	}	: NR	¦
17440-47-3	Chromium_	}	1 1	}	INR	;
17440-48-4			: :		: NR	;
17440-50-8	Copper		1 1		INR	;
17439-89-6			1 1		INR	;
17439-92-1	Lead		1 1		INR	;
17439-95-4			1 1	}	! NR	;
17439-96-5	Manganese	,	1 1		NR.	!
17439-97-6	Mercury	0.20	: U:	}	CV	;
17439-02-0			; ;		! NR	!
17440-09-7	:Potassium:		: :		INR	;
17782-49-2	Selenium	•	: :		I NR	1
17440-22-4			: :	1	! NR	į
17440-23-5			; ;		! NR	;
17440-28-0			: :	1	INR	1
17440-62-2	_		; ;		I NR	;
17440-66-6			: :		I NR	1
1	Cyanide		: :		! NR	!
			:_:			. !
<del></del>						

Color Before:	Clarity Before:	Texture:
Color After:	Clarity After:	Artifacts:
Comments:		

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recycled paper recycled paper

% Solids:

## U.S. EPA - CLP

			1		EPA SAMPLE NO.
•		INORGANIC A	ANALYSIS DATA S	HEET	
					MHP524
Lab Name:	KEYSTONE ENVIR	ONMENTAL	Contract: 6	8-W8-0005	
Lab Code:	KEYTX Ca	se No.: 123	334 SAS No.:		SDG No.: MHP520
Matrix (so	il/water): WAT	ER		Lab Sample	e ID: 890774008
Level (low	/med): LOW			Date Rece	ived: 07/21/89
% Solids:	0				·
	Concentrati	on Units (	ug/L or mg/kg d	ry weight:	): UG/L
		!			
	CAS No.	Analyte	Concentration	ic: a	MI
	;	1	 	.;_;	! !
	17429-90-5				INR I
	17440-36-0				INR I
	17440-38-2	Arsenic			INR
	17440-39-3				INR I
•	17440-41-7			•	INR I
	17440-43-9			·	INR
	17440-70-2				INR I
	17440-47-3	_			INR I
	17440-48-4	Cobalt			INR I
	17440-50-8	Copper	j		INR :
	17439-89-6	::ron			INR    NR
	17439-92-1	ileadi	<b>i</b>		INR I
	17439-95-4				INR I
	17439-96-5				ICV I
	17439-97-6 17439-02-0				NR :
	17440-09-7				NR :
	17782-49-2			•	INR I
	17440-22-4				NR :
	17440-22-5	.ariver	l I	•	INR I
	17440-28-0		; •		INR I
	17440-62-2		! !	•	INR !
	17440-66-6				INR I
		Cyanide			INR I
		1			l l
		·			
Color Befor	e:	Clarity	/ Before:	7	Texture:
Color After	:	Clarity	/ After:	4	Artifacts:
Comments:					

### U.S. EPA - CLP

	. ]		INOPGANIC	1 ANALYSIS DATA	SHEET		SAMPLE NO.	_!
Lab	Name:	KEYSTONE	ENVIRONMENTAL	Contract:		i	MHP525	- i
Lab	Code:	KEYTX	Case No.: 123	334 SAS No.	. :	SDG 1	No.: MHP520	

Matrix (soil/water): WATER

Lab Sample ID: 890774009

Level (low/med): LOW Date Received: 07/21/89

% Solids:

ii institui 0

Concentration Units (ug/L or mg/kg dry weight): UG/L

1	1		1 1		1 1
ICAS No.	! Analyte	Concentration	:C:	Q	M
	,	 	-jj-		-!!
	Aluminum_				INR I
17440-36-0	. —		1 1		INR
17440-38-2			; ;		INR :
17440-39-3			1 1		INR
17440-41-7	Beryllium	1	: :		:NR :
17440-43-9			1 1		INR :
17440-70-2	Calcium	•	1 1	•	INR :
17440-47-3	Chromium_		1 1		INR
17440-48-4	:Cobalt				INR
17440-50-8	:Copper		1 1		INR :
17439-89-6		}	1 1		INR I
7439- <del>9</del> 2-1	:Lead		1 1		INR :
17439-95-4	:Magnesium	<b>;</b>	1 1		INR I
17439-96-5	:Manganese		1 - 1		INR I
17439-97-6			:U:		CV :
17439-02-0	Nickel		: :		INR I
17440-09-7	Potassium		1 1		INR I
17782-49-2			: :		INR :
17440-22-4			; ;		INR :
17440-23-5			; ;		INR I
17440-28-0			1 1		INR :
17440-62-2	Vanadium_		1 1		INR I
17440-66-6	Zinc	•	1 1		INR I
!	Cyanide		1 1		INR :
i	.		1_1_		_

Color	Before:	Clarity	Before:	Texture:
Color	After:	Clarity	After:	Artifacts:
Commer	nts:			

## U.S. EPA - CLP

		TNOORANIT	1 RGANIC ANALYSIS DATA SHEET		EPA SAMPLE NO.	
Lab Name:	KEYSTONE	INDRBANI ENVIRONMENTAL		68-W8-0005	MHP526	
Lab Code:	KEYTX	Case No.:	12334 SAS No	· :	SDG No.: MHP520	
Matrix (so	oil/water)	: WATER		Lab Sample	ID: 890774010	
Level (low	/med):	LOW		Date Recei	ved: 07/21/89	

Q

Concentration Units (ug/L or mg/kg dry weight): UG/L

% Solids:

						_
CAS No.	   Analyte 	:  Concentration 	C	Q	   M 	!
	Antimony_  Arsenic  Barium  Beryllium  Cadmium  Calcium  Chromium_  Cobalt				NR RR RR NR N	
7439-89-6   7439-92-1   7439-95-4   7439-96-5   7439-97-6   7439-02-0   7440-09-7   7782-49-2   7440-22-4   7440-23-5   7440-29-0   7440-66-6   7440-66-6	Iron   Lead   Magnesium   Manganese   Mercury   Nickel   Potassium   Selenium_   Silver   Sodium   Thallium_	0.20			NR R R C N R R R R R R R R R R R R R R R	

Color	Before:	Clarity	Before:	Texture:		
Color	After:	Clarity	After:	Artifacts:		
Commer	nts:					
	· · · · · · · · · · · · · · · · · · ·					

#### U.S. EPA - CLP

		J.J.			
Lab Nagos KE			1 ANALYSIS DATA		EPA SAMPLE NO
rao Name: KE	19 IONE ENVIR	JINMENTAL	Contract:	98-M9-0003	·
Lab Code: K	EYTX Cas	se No.: 123	34 SAS No.	:	SDG No.: MHP520
Matrix (soil	/water): WAT	ER		Lab Sampl	e ID: 830774011
Level (low/m	ed): LOW		e de la companya de La companya de la co	Date Rece	ived: 07/21/89
% Solids:	o				
	CAS No.	Analyte Aluminum Antimony Arsenic Barium Beryllium Cadmium Chromium Chromium Cobalt Iron Lead Magnesium Manganese Mercury Nickel Potassium Selenium Silver Sodium Thallium Vanadium Zinc Cyanide	8.50		M
Color Before:	•	·	/ Before:		Texture:
Color After:		Clarity	/ After:		Artifacts:

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Comments:

4. <del>- 1.</del> 1. 1

NATO NA MATO NA

## U.S. EPA - CLP

·	1 INORGANIC ANALYS	IS DATA SHEET	EPA SAMPLE NO.
Lab Name: KEYSTONE E	NVIRONMENTAL Con	tract: 68-W8-0005	MHP528
Lab Code: KEYTX	Case No.: 12334	SAS No.:	SDG No.: MHP520
Matrix (soil/water):	WATER	Lab Sample	e ID: 890774012
Level (low/med):	LOW	Date Recei	ived: 07/21/89
% Solids:	0		

Concentration Units (ug/L or mg/kg dry weight): UG/L

				 <del></del>	<del>-</del>
: :CAS No. :	   Analyte 	:  Concentration 	; c;	: : M :	;
17429-90-5	Aluminum	' ! !	-	 INR	· ;
17440-36-0			1. 1	INR	!
17440-38-2			1 1	INR	!
17440-39-3		_	; ;	INR	1
17440-41-7			;	INR	i
17440-43-9	Cadmium	!	; ;	INR	ł
17440-70-2			: :	! NR	;
17440-47-3			: :	INR	;
17440-48-4	:Cobalt	•	: :	! NR	1
17440-50-8	!Copper		: :	INR	!
17439-89-6			: :	INR	:
17439-92-1	Lead	}	: :	INR	;
17439-95-4	Magnesium		: :	! NR	;
17439-96-5	! Manganese	<b>!</b>	; ;	: NR	;
17439-97-6	Mercury	0.20	: U:	CV	3
17439-02-0	:Nickel		; ;	: NR	1
:7440 <i>-</i> 09-7	Potassium	<b>\</b>	; ;	INR	;
17782-49-2	Selenium_	1	: :	! NR	;
17440-22-4	Silver	}	; ;	INR	1
17440-23-5	Sodium	<b>!</b>	; ;	INR	ł
17440-28-0	Thallium_		1 1	! NR	1
17440-62-2	Vanadium_	}	: :	INR	1
17440-66-6	Zinc	}	; ;	INR	1
!	Cyanide		: :	INR	!
1	1		!_!	 !	, 1

Color	Before:	Clarity	Before:	Texture:
Color	After:	Clarity	After:	Artifacts:
Commer	its:			
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#### U.S. EPA - CLP

		0.0.			•	
		Thiomoshita	1	~	EPA	SAMPLE NO.
		INURGANIC A	NALYSIS DATA	SHEE	;	
Lab Name: KE	YSTONE ENVIR	ONMENTAL	Contract: (	58-W8-C	005	MHP529
Lab Code: K	EYTX Ca	se No.: 123	34 SAS No.	:	SDG	No.: MHP520
Matrix (soil	/water): WAT	ER		Lab Sa	ample ID:	890774013
Level (low/m	ed): LOW			Date F	Received:	07/21/89
% Solids:	0					
	Concentrati	on Units (u	g/L or mg/kg o	drv wei	abt): UG	/1
	! !CAS No	1 4001450 1	Concentration	, <b>.</b> .	! ; 1 ! M !	
	iona No.					
	7429-90-5	Aluminum		- <u> </u> -	NR :	
	17440-36-0	Antimony		ii	INR :	
	17440-38-2	Arsenic			INR I	
	17440-39-3	Barium			INR I	
	17440-41-7				INR I	
	17440-43-9				INR I	
	17440-70-2				INR :	
	17440-47-3				INR I	
	17440-48-4			1 1	INR :	
	17440-50-B	Copper			INR	
	17439-89-6	Iron			INR I	
:	17439-92-1			ii	INR I	
	17439-95-4				INR I	
	17439-96-5				INR :	
	:7439- <del>9</del> 7-6			:41		
	17439-02-0			1 1	INR I	
	17440-09-7			1 1	INR :	
	17782-49-2			: :	INR :	
	17440-22-4			;	INR :	
	17440-23-5			1 1	INR :	
	17440-28-0			1 1	INR I	
	17440-62-2				INR I	
	17440-66-6	Zinc			. INR I	
		Cyanide			INR :	
				_		
Color Before:		Clarity	Before:		Textu	re:
Color After:		Clarity	After:		Artif	acts:
Comments:			•			

## U.S. EPA - CLP

		·	1		EPA SAMPLE NO.
		INORGANIC	ANALYSIS DATA S	SHEET	MUDERA
Lab Name:	KEYSTONE ENVIR	RONMENTAL	Contract: 8	58-W8-0005	MHP530 
Lab Code:	KEYTX Ca	se No.: 12	334 SAS No.:	1	SDG No.: MHP520
Matrix (so:	il/water): WAT	ER		Lab Sample	ID: 890774014
Level (low)	/med): LOW	1.		Date Recei	ved: 07/21/89
% Solids:	0				
	CAS No.   7429-90-5   7440-36-0   7440-38-2   7440-39-3   7440-41-7   7440-43-9	Analyte Aluminum Antimony Arsenic Barium Beryllium	; ; ; ;	C   Q	M
	17440-70-2 17440-47-3 17440-48-4 17440-50-8 17439-89-6 17439-95-4 17439-95-4 17439-97-6 17439-02-0 17440-09-7 17782-49-2 17440-22-4 17440-28-0 17440-66-6	Chromium_  Cobalt  Copper  Iron  Lead  Magnesium  Manganese  Mercury_  Nickel  Potassium  Selenium_  Silver  Sodium  Thallium_  Vanadium_	0.20		NR
Color Before				.	: exture:
Color After:			/ After:		rtifacts:
	•				•
Comments:					

## U.S. EPA - CLP .

•	INORGANIC AN	1 ALYSIS DATA	SHEET	EPA SAMPLE NO.
Lab Name: KEYSTONE E	NVIRONMENTAL	Contract:		MHP532
Lab Code: KEYTX	Case No.: 1233	4 SAS No.	:	SDG No.: MHP520
Matrix (soil/water):	WATER		Lab Sample	ID: 890774015
Level (low/med):	LOW		Date Recei	ved: 07/21/89
% Solids:	0			
Concent	ration Units (ug	/L or mg/kg	dry weight)	: UG/L

CAS No.	:   Analyte 	  Concentration 	C	Q	; ; M	:
17429-90-5	Aluminum	 	: :		INR	•
17440-36-0	_		: :		INR	1
17440-38-2	'Arsenic	1	1 1		INR	-
17440-39-3	Barium				INR	1
17440-41-7	Beryllium		: :		INR	1
17440-43-9	Cadmium	! !	: :		INR	1
17440-70-2	Calcium		1 1		INR	1
17440-47-3	Chromium_		1 1		INR	1
17440-48-4	Cobalt	!	1 1		INR	1
17440-50-8	Copper		;		INR	1
	!Iron		: :		INR	1
	Lead		: :		INR	1
17439-95-4	Magnesium	,	! !		INR	;
17439-96-5	Manganese	<b>¦</b>	! !		INR	;
17439-97-6	Mercury	0.20	:U:		LCV	;
17439-02-0	Nickel	! !	: :		!NR	!
17440-09-7	Potassium		! ;		INR	1
17782-49-2	Selenium_	 	: :		INR	ţ
17440-22-4	Silver	1 1	;		INR	ŀ
17440-23-5	Sodium	1	: :		INR	1
17440-28-0	Thallium_	1	;		INR	;
17440-62-2	Vanadium_	! !	: :		INR	!
17440-66-6	Zinc	i 1	; ;		! NR	;
!	Cyanide	<b>;</b>	; ;		INR	1
;		 	1_1		1	- !

Color	Before:	Clarity Before:	lexture:
Color	After:	Clarity After:	Artifacts:
Commer	nts:		
	<del></del>		

#### U.S. EPA - CLP

			51 A 051		
		INORGANIC (	·1 Analysis data s	SHEET	EPA SAMPLE NO.
Lab Name:	KEYSTONE ENVIR	ONMENTAL	Contract: 6	58-W8-0005	MHP533 
Lab Code:	KEYTX Ca	se No.: 12:	334 SAS No.:	:	SDG No.: MHP520
Matrix (so	il/water): WAT	ER		Lab Sample	ID: 890774016
Level (low	/med): LOW		·	Date Recei	ived: 07/21/89
% Solids:	. •				
	Concentrati	on Units (	ug/L or mg/kg c	try weight:	o: UG/L
				·	
	ICAS No.	•	Concentration		М
			; !	-	
	17429-90-5			•	INR I
	17440-36-0				INR   INR
	17440-38-2				NR I
	7440-39-3  7440-41-7				NR
	17440-43-9				NR I
	17440-70-2				NR I
	17440-47-3				NR I
	17440-48-4				NR I
	7440-50-8				NR I
	17439-89-6	!Iron	! !		NR I
	17439-92-1	llead	, 		NR I
	17439-95-4				NR I
	17439-96-5				NR !
	17439-97-6				CV !
	17439-02-0				NR I
	17440-09-7				NR I
	17782 -49 -2	Selenium_	!	1 1	NR
	17440-22-4			1 1	NR I
	17440-23-5			1 1	NR !
	17440-28-0				NR
	17440-62-2				NR
	:7440-66- <del>6</del>				NR
	ļ	Cyanide	<u>;</u>	; ;	
	i		<sup> </sup>	.   _	'
Color Before	<b>:</b> :	Clarity	/ Before:	7	exture:
Color After	:	Clarity	/ After:	A	ertifacts:
Comments:					

		u.s.	EPA - CLP	•	
•		INORGANIC A	1 NALYSIS DATA	SHEET	EPA SAMPLE NO.
Lab Name: KEY	STONE ENVIR	ONMENTAL	Contract:	68-W8-000 <b>5</b>	MHP534 
Lab Code: KE	YTX Cas	se No.: 123	34 SAS No.	:	SDG No.: MHP520
Matrix (soil/	water): WAT	ER		Lab Sampl	e ID: 890774017
Level (low/me	d): LOW			Date Rece	ived: 07/21/89
% Solids:	0	4			
	Concentration	on Units (u	g/L or mg/kg	dry weight	): UG/L
	1	:			
		•	Concentration		: M :
	7429-90-5				;; !NR !
	17440-36-0				INR I
	17440-38-2				INR I
	17440-39-3				INR I
	17440-41-7				INR
	17440-43-9			: :	INR
	17440-70-2			1 1 .	INR
	17440-47-3	Chromium_		: :	INR
	17440-48-4			1 1 2	INR I .
	17440-50-8	Copper		11.	INR I am are a second
	17439-89-6	:Iron:	•		INR
	17439-92-1			; ;	INR
	17439-95-4				INR !
	17439-96-5	Manganese			INR I
			0.20		ICV :
	17439-02-0				INR I
	17440-09-7				INR I
	17782-49-2				INR I
	17440-22-4				INR :
	17440-23-5				INR I
•	17440-28-0				INR   INR
	17440-62-2				
	17440-66-6				INR
		Cyanide  			INR   
Color Before:		Clarity	Before:		Texture:
Color After:		Clarity	After:		Artifacts:
Comments:					

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### U.S. EPA - CLP

			INO	RGANIC AN	1 ALYSIS DATA	A SHEET	EPA SAMPLE	
Lab Na	ane:	KEYSTONE	ENVIRONM	ENTAL	Contract:	68-W8-0005	MHP535	
Lab Co	ode:	KEYTX	Case I	No.: 1233	4 SAS No	.:	SDG No.: MH	P520
Matri	ix (so	il/water)	: WATER			Lab Sample	D: 890774	018
Level	(1ow	/med):	LOW			Date Recei	.ved: 07/21/	89

O

% Solids:

تبربي

Concentration Units (ug/L or mg/kg dry weight): UG/L

  CAS No. 	   Analyte 	  Concentration 	; C	Q	! ! M !	
17429-90-5	Aluminum	1	;		INR	- ;
17440-36-0	_		;		INR	1
17440-38-2			: :		INR	;
17440-39-3		-	: :		INR	ł
7440-41-7			; ;		INR	;
17440-43-9	•		: :		INR	1
7440-70-2			; ;		INR	1
17440-47-3			: :		INR	;
17440-48-4	_		: :		INR	;
17440-50-B	Copper		: :		INR	!
17439-89-6			: :		INR	1
7439-92-1		}	; ;		INR	1
17439-95-4	Magnesium	1	; ;		INR	;
17439-96-5	· · · · · · · · · · · · · · · · · · ·		: :		INR	1
17439-97-6	· -		: U :		CV	;
17439-02-0	,		; ;		INR	;
17440-09-7	!Potassium	;	; ;		INR	;
17782-49-2	Selenium	!	; ;		INR	;
17440-22-4	_		; ;		INR	;
17440-23-5			: :	i I	INR	;
17440-28-0			; ;		INR	;
17440-62-2	Vanadium_	[	: :		INR	1
17440-66-6	Zinc	!	; ;		INR	!
!	Cyanide	<b>¦</b>	! !		INR	- {
1	1		_		!	_

Color	Before:	Clarity	Before:	Texture:
Color	After:	Clarity	After:	Artifacts:
Commen	nts:			
				00000

#### U.S. EPA - CLP

Lab Name: KEYS Lab Code: KEY Matrix (soil/w	TONE ENVIRO	ONMENTAL	1 NALYSIS DATA S Contract: 6			!	SAMPLE NO
Lab Code: KEY	TX Cas		Contract: 6	8 -W	ローハヘヘミ		· · · · · — — •
		se No.: 123			9-0003	¦	
Matrix (soil/w	ater): WAT		34 SAS No.:	1		SDG	No.: MHP52
		ER		Lab	Sampl	e ID:	890774019
Level (low/med	): LOW			Dat	e Rece	ived:	07/21/89
% Solids:	0						
С	oncentratio	on Units (u	.g/L or mg/kg o	iry	weight	): UG	/L
<u></u> !			. <del> </del>			<del></del>	
; ;	CAS No.		Concentration			i M	
<u>'</u> .	7429-90-5	Aluminum :		- ' - '		NR :	
	7440-36-0			1 1		INR :	
	7440-38-2			1 1		INR I	
	7440-39-3			1 :		INR :	
;	7440-41-7	Beryllium		1 1		INR I	
	7440-43-9			1 1		INR 1	
	7440-70-2	Calcium		1 1		INR I	
	7440-47-3			1 :		INR :	
1	7440-48-4	Cobalt:		; ;		INR	•
· '	7440-50-8	Copper		; ;		INR I	
	7439-89-6			1 1		INR I	
!	7439-92-1	Lead:		; ;		INR I	
1	7439-95-4	Magnesium		1 :		:NR	
	7439-96-5			1 1		INR	
	7439-97-6					CV	
	7439-02-0			1 1		INR I	
	7440-09-7			; ;		INR I	
	7782-49-2			1 !		INR	
	7440-22-4			1 1		INR	
	7440-23-5					INR I	
	7440-28-0					INR I	
	7440-62-2			1 1		INR I	
	7440-66-6					INR :	
i.		 		i i		INR :	
i,		' '		- ' <del></del> ' ·		' '	
Color Before:		Clarity	Before:		•	Textu	re:
Color After:		Clarity	After:		,	Artif.	acts:
Comments:							

#### U.S. EPA - CLP

	•	0.5.	LIM GEI		
•		INORGANIC	1 Analysis data :	SHEET	EPA SAMPLE NO.
					MHP538
Lab Name:	KEYSTONE ENVIR	ONMENTAL	Contract: 6	58-W8-0005	 
Lab Code:	KEYTX Ca	se No.: 12	334 SAS No.:	:	SDG No.: MHP520
Matrix (so	il/water): WAT	ER		Lab Sample	ID: 890774020
Level (low	/med): LOW			Date Recei	ived: 07/21/89
% Solids:	0				
	CAS No.	   Analyte	ug/L or mg/kg o      Concentration	ici a	
	   7429-90-5   7440-36-0   7440-38-2   7440-41-7   7440-43-9   7440-47-3   7440-48-4   7440-50-8   7439-89-6   7439-95-4   7439-95-4	Aluminum	0.20		
Color Before	7440-66-6 	Zinc  Cyanide	<b>!</b> !		NR :
COLOR DETOFE	<u>.</u>	<u> </u>	, 20161	,	
Color After	:	Clarity	y After:	A	rtifacts:
Comments:					
		~			

## U.S. EPA - CLP

		INGGGANI	1 C ANALYSIS DATA	CUEET	EPA SAMPLE NO.
Lab Name:	KEYSTONE E	INORGANI			MHP539
Lab Code:	KEYTX	Case No.:		. :	SDG No.: MHP520
Matrix (s	oil/water):	WATER		Lab Sample	: ID: 890774021
Level (lo	w/med):	LOW		Date Recei	.ved: 07/21/89
% Solids:		0			
	Concent	ration Units	(ug/L or mg/kg	dry weight)	: UG/L

! !CAS No. !	:   Analyte 	:  Concentration	; c;	Q	: : M :	!
17429-90-5	Aluminum	1	; -;		INR	·
17440-36-0	Antimony		! !		! NR	;
17440-38-2			; ;		INR	;
17440-39-3			; ;		! NR	ļ
17440-41-7	Beryllium		; ;		INR	1
17440-43-9	Cadmium	<u> </u>	; ;		INR	;
17440-70-2	Calcium	<u> </u>	: :		INR	1
17440-47-3	Chromium_	<b>!</b>	: :		INR	1
17440-48-4	Cobalt	1	: :		: NR	ł
17440-50-8	Copper	1	: ;	1.1	!NR	ł,
17439-89-6	:Iron	!	1 1		INR	ţ
{7439-92-1	!Lead	!	1 1		INR	i
17439-95-4	Magnesium	<b>;</b>	1 1		: NR	ł
17439-96-5	:Manganese	<del>{</del>			: NR	ł
17439-97-6	Mercury	0.20	: U:		CA	;
17439-02-0	Nickel	<b>!</b>	; ;		: NR	1
17440-09-7	Potassium	<del> </del>	1 1		! NR	ł
17782-49-2	Selenium_	† †	; ;		INR	;
17440-22-4	'Silver	† †	1 1		: NR	ł
17440-23-5	!Sodium		; ;		: NR	ļ
17440-28-0	!Thallium_	j 1	1 1		! NR	ł
17440-62-2	:Vanadium_	† 	1. 1		: NR	1
:7440-66-6	:Zinc	!			! NR	1
1	Cyanide	! !	; ;		! NR	;
!	!	: 	1_1		!	. !

Color	Before:	Clarity Before:	Texture:
Color	After:	Clarity After:	Artifacts:
Commer	nts:		

## U.S. EPA - CLP

	INORGANIC ANA	1 LYSIS DATA SHEET	EPA SAMPLE NO.
Lab Name: KEYSTONE E		Contract: 68-W8-0005	MHP540
Lab Code: KEYTX	Case No.: 12334	SAS No.:	SDG No.: MHP520
Matrix (soil/water):	WATER	Lab Sample	ID: 890774022
Level (low/med):	LOW	Date Recei	ived: 07/21/89
% Solids:	0 '		

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	   Analyte	  Concentration	T   C	(   Q	; ; M	:
7429-90-5	:Aluminum	' !	-	'	NR	•
17440-36-0	-			•	NR	1
17440-38-2				-	: NR	
17440-39-3			:	•	NR.	1
17440-41-7			1	="	INR	:
17440-43-9	,		:	=	NR	•
17440-70-2			!!!	•	NR.	į
17440-47-3			!		NR.	•
17440-48-4	_		!	=	INR	i
17440-50-8	Copper				NR	
17439-89-6			,	•	NR.	•
			, ,	•	NR	j
17439-92-1 17439-95-4			• 1		.NR	,
			1 1		INR	1
17439-96-5	_		1 1 1		CV	;
17439-97-6			1 (1)		NR	1
17439-02-0			; (		:NR	1
17440-09-7			1 1		INR	1
17782-49-2	_		1 1		INR	1
17440-22-4			1 1		NR	-
17440-23-5			1 1		INR	
17440-28-0	_		1 1			1
17440-62-2	_		1 1		INR	1
17440-66-6	Zinc		i i		INR	,
<u> </u>	Cyanide	1	1 1		:NR	,
i	;	;	i _ i		·	- '

Color	Before:	Clarity	Before:	Texture:
Color	After:	Clarity	After:	Artifacts:
Commer				
				000025

### REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW

\*\*\*guideline references are from Contract #787\*\*\*

Case No.: SAS 4725H TDD No.: F08-8909-08

Site: Richardson Flats

Contractor Laboratory: Silver Valley Labs

Data Reviewer: Annette Sackman Date of Review: 9-15-89

Sample Matrix: 14 Low Soils

Analysis: Metals plus Mercury

Sample Nos.: 4725H01, 4725H02, 4725H03, 4725H04, 4725H05, 4725H06,

4725H07, 4725H08, 4725H09, 4725H10, 4725H11, 4725H12,

4725H13, 4725H14

( ) Data are acceptable for use.

- (X) Data are acceptable for use with qualifications noted.
- ( ) Data are preliminary pending verification.
- ( ) Data are unacceptable.

Action required by DPO?

No X Yes The following items require action:

Action required by project officer?

No X Yes

### The following are our findings:

All calibration and blank contract compliances were met except that for the last half of the thallium analysis the ICV, ICB, CCV and CCB was not recorded on forms IIA and III.

The CRDL standards were run only at the beginning of the furnace AA analysis and not at the end. No qualifications have been prescribed for this discrepancy so no flags are assigned.

Spike recoveries were low for antimony (52.9%) and thallium (48.7%) and indicate positive values for these elements are biased low and flagged "J", estimated. Undetected values indicate antimony and thallium may or may not be present due to elevated detection limits; therefore, these values are flagged "UJ", estimated. Selenium spike recoveries were very low (-33.1%) and indicate these values are severely biased low. Positive values confirm the presence of the element but are flagged "J" and estimated low. Undetected values do not indicate the nonexistence of the element and are unusable and flagged "R", rejected.

For the MSA analysis for thallium, no raw data was presented for duplicate injections. One of the correlation coefficients was below 0.995 for samples 4725H02, 4725H06, 4725H09 and 4725H11; therefore, thallium values for these samples are flagged "J", estimated. For sample 4725H03, both correlation coefficients were below 0.995; therefore, the thallium value for this sample is unusable and flagged "R", rejected.

For the MSA analysis for selenium, both correlation coefficients were below 0.995 for samples 4725H01, 4725H04, 4725H05 and 4725H08; therefore, values for these samples are unusable and flagged "R", rejected.

The percent difference was high for the serial dilution for cadmium (14.5%); therefore these values are flagged "J", estimated.

Lead was analyzed by ICAP due to high sample concentrations, therefore the CRDL of 5µg/l was not met but is waived under these unusual conditions.

### Inorganic Data Completeness Checklist

- X Inorganic analysis data (Form I)
- X Initial calibration and continuing calibration verification (Form IIA)
- X CRDL standard for AA and ICP (Form IIB)
- X Blanks (Form III)
- X ICP interference Check sample (Form IV)
- X Spike sample recovery (Form VA)
- X Post digestion spike sample recovery (Form VB)
- X Duplicates (Form VI)
- X Laboratory control sample (Form VII)
- X Standard addition results (Form VIII)
- X ICP serial dilutions (Form IX)
- X Holding times (Form X)
- X Instrument detection limits-quarterly (Form XI)
- X ICP interelement correction factors-quarterly (Form II)
- X ICP linear ranges-quarterly (Form XIII)
- X Raw data for interference checks
- X Raw data for calibration standards
- X Raw data for blanks
- X Raw data for CRI and/or CRA
- X Raw data for samples
- X Raw data for duplicates
- X Raw data for spikes
- X Traffic reports

## Contract Compliance

- I. Initial and Continuing Calibration Verification (ICV and CCV) (guidelines pg. E-4, Form IIA)
  - Was instrument calibrated daily and each time it was set up? yes X no
  - Were instruments calibrated using 1 blank and several standards?
    yes X no
  - 3. Were calibration verifications within 90-110%? yes X no
  - 4. Were continuing calibrations run at 10% frequency? yes X no
- 5. Were the raw data correctly transcribed onto Form IIA?

  yes no X

  Comments: For thallium, one-half of the CCV's were not recorded on Forms IIA. All other requirements were met.
- II. CRDL Standards for ICP (CRI) and/or AA (CRA) (guidelines pg. E-6, Form IIB)
  - 1. For ICP analysis, were standards (CRI) @ 2x the CRDL or the IDL (whichever was greater) analyzed at the beginning and the end of each sample run, or at a minimum of twice/8 hour shift, whichever was more frequent?

yes X no

- 2. For furnace AA analysis, were standards (CRA) analyzed at the beginning and the end of each sample run, or at a minimum of twice/8 hour shift, whichever was more frequent?
  ves
  no X
- Were the CRI and/or CRA standards analyzed after the ICV? yes X no
- 4. Were these data reported on Form IIB?

  yes X no
- 5. Were the raw data correctly transcribed onto Form IIB?

  yes X no

  Comments: No CRA was run at the end of the furnace AA analyses.

### III. Blanks (guidelines pg. E-6, Form III)

- 1. Was the initial calibration blank (ICB) analyzed immediately after the initial calibration verification (ICV)?
  ves X
  no
- 2. Was a continuing calibration blank (CCB) analyzed immediately after each continuing calibration verification (CCV)?

  yes X

  no
- 3. Was a preparation blank (PB) analyzed at a frequency of at least 1 in 20 samples?

  yes X no NA
- How many elements were detected above the CRDLs? 0 (if 0, go to question 5)
  - 4a. How many elements were detected in the blanks at greater than one-half the amount detected in any sample?
- 5. Were raw data correctly transcribed onto Form III?

  yes no X

  Comments: Only one-half of the blanks for thallium were recorded on Form III. All other requirements were met.

#### IV. ICP Interference Checks (ICS) (guidelines pg. E-7, Form IV)

- 1. Was the ICS analyzed twice per 8 hour shift?

  yes X no
- Were the ICSs analyzed before and after samples? yes X no
- 3. Was any massive interference detected?

  yes

  no X
- 4. Were the ICSs within  $\pm 20\%$  mean value? yes X no
- 5. Were raw data correctly transcribed onto Form IV?

  yes X no

Comments: All requirements met.

- V. Spike Sample Analysis (S) (guideline pg. E-8, Form V)
  - 1. Were spikes analyzed at a frequency of 1 in 20 samples? yes X no
  - 2. Were spike recoveries correctly calculated? yes X no

$$x \text{ recovery} = \frac{(SSR - SR)}{SA} \times 100$$

SSR = Spiked Sample Result

SR = Sample Result
SA = Spike Added

- 3. Were spike recoveries within the range of 75-125%?

  yes

  no X
  - 3a. For recoveries outside this range, were associated data flagged "N" by the laboratory on Forms I and V? yes X no NA
  - (an exception if granted where the sample concentration is >4X the spike concentration)
  - 4. Were raw data correctly transcribed onto Form V? yes X no
- \* Refer to page E-9 (SOW 787) for information regarding the amount of spike to be added for each analyte and for other information about the Spike Sample Analysis.

Comments: For antimony and thallium, recoveries were 52.9% and 48.7%, respectively; therefore, positive values are flagged "J", estimated and undetected values are flagged "UJ". For selenium, recoveries were -33.1%, therefore, positive values are flagged "J", estimated and confirm the presence of selenium in the sample and undetected values are unusable and flagged "R", rejected.

- VI. Duplicates (D) (guidelines pg. E-11, Form VI)
  - 1. Were duplicates analyzed at a frequency of 1 in 20 samples? yes X no
  - 2. Were RPDs correctly calculated?

    yes X

$$RPD = \frac{S - D}{(S + D)/2} \times 100$$

S = Sample

D = Duplicate

no

- 3a. For sample concentrations >5x the CRDL, were RPDs ±20%? (limits of ±35% apply for soil/sediment/tailings samples)

  yes X no NA
- 3b. For sample concentrations >5x the CRDL, did duplicate analysis results fall outside the control window of ± the CRDL?

  yes no X NA
- 3c. Where the RPDs exceeded the control limits, were the data flagged '\*' on Forms I and VI by the laboratory?

  yes no NA X
  - 4. Were raw data correctly transcribed onto Form VI? yes X no
- \* Other Considerations:
- Field blanks cannot be used for duplicate analyses
- Duplicates must be analyzed for each analytical method

Comments: All requirements met.

- VII. Laboratory Control Sample (LCS) Analysis (guideline pg. E-12, Form VII)
  - 1. Was an LCS analyzed for every sample delivery group or batch of samples, whichever was more frequent? yes X no
  - Were recoveries within the 80-120% limit? yes X no

-if the recoveries were outside this range the analysis must be terminated, the problem corrected and the previous samples associated with that LCS redigested and reanalyzed.

3. Were the raw data correctly transcribed onto Form VII? yes X no

Comments: All requirements met.

## VIII. Furnace Atomic Absorption (AA) QC Analysis (guidelines pg. E-14, Form VIII)

1. Does the raw data package contain absorbance values for two injections per sample, the average values and the relative standard deviation (RSD)?

yes

no X

2. For analyte concentrations > the CRDL, did the RSD for the duplicate injections agree within 20%? (if yes, go to question 3)

yes

no X

 $RSD = \underbrace{SD}_{M} X 100$ 

SD = Standard Deviation of Duplicate Injections

M = Mean of Duplicate Injections

- 2a. Were samples that exceeded the 20% criteria reanalyzed?

  yes X no
- 2b. Did any reanalyzed samples exceed the 20% criteria? yes X no

ves X no

Was the recovery of the spike > 40%? (if yes, go to question 4).

yes no X

If no, was the sample diluted and rerun with another spike?

yes X no

4. Was sample absorbance >50% of spike absorbance?\* (if yes, go to question 5).

yes no X

\* Spike absorbance = absorbance of spiked sample - absorbance of sample.

4a. For spike recoveries between 85 and 115%, were results reported to the IDL?

yes X no

 $RPD = \frac{(SSR - SR)}{SA} \times 100$ 

SSR = Spike Sample Recovery

SR = Sample Result
SA = Spike Added

- 4b. For spike recoveries outside the 85 and 115% range, were results reported to the IDL and flagged with 'W'?

  yes X no
- 5. Was spike recovery between 85 and 115%? (if no, go to question 6)
  - 5a. Were results quantified from calibration curve and reported to IDL?

yes no X

6. Was an MSA at 50, 100 and 150% of the sample absorbance analyzed?

yes X no

- 6a. Was each MSA analysis identified in the raw data along with the slope, intercept and correlation coefficient? yes X no
- 6b. Were these data correctly transcribed onto Form VIII? yes X no
- 6d. If no, were MSAs run once more?

  yes X no
- If the correlation coefficients were still > 0.995, data on Form I must be from the run with the best 'r' and the data on Forms I and VII must be flagged with a '+'.

Were these criteria met?

yes X

6e. Were all MSA obtained data marked with an 'S' or an S+ on form I?

yes X no

Comments: There was no raw data for duplicate injections for the thallium analysis. For the duplicate sample in the selenium analysis, the duplicate injections and the third injection was greater than 20%D. No flag was assigned since this was a QA sample. The thallium values for the following samples had on correlation coefficient <0.995 and are flagged "J", estimated: 4725H02, 4725H06, 4725H09 and 4725H11. The thallium and selenium values for the following samples had both correlation coefficients <0.995 and are flagged "R", rejected: thallium - 4725H03, selenium - 4725H01, 4725H04, 4725H05 and 4725H08.

- IX. ICP Serial Dilution (L) Analysis (guidelines pg. E-12, Form IX)
  - 1. Was an ICP serial dilution performed on each group of samples of a similar matrix (i.e., soil, water) and concentration (i.e., low, high) or for each sample delivery group, whichever was more frequent?

yes X no

2. For elements with concentrations >10% the CRDL, did any exceed the serial dilution results by more than 10%? (if no, skip questions 3 and 4)

yes X no

% difference =  $\frac{I - S}{I}$  X 100

I = Initial Sample Result

- S = Serial Dilution Result (instrument reading X5)
- 3. Which elements had concentrations that exceeded the 10% criteria? Cadmium
- 4. Did the laboratory flag these data with an 'E' on Form IX?

  yes X no
- 5. Were the raw data correctly transcribed onto Form IX? yes X no

Comments: Cadmium values are flagged "J", estimated due to high %D (14.5%).

recycled paper

- X. Instrument Detection Limits (IDL) (guidelines pg. E-13, Form XI)
  - 1. Were IDLs reported for each analyzed element? yes X no
  - Were IDLs reported for each instrument used? yes X
  - 3. Did the IDLs meet the contract requirements? (refer to pg. E-13, SOW 787)

yes no X

Comments: Lead was analyzed by ICAP due to high sample concentration. No action is taken due to these conditions.

- XI. Interelement Corrections for ICP (guidelines pg. E-13, Form XII)
  - Were correction factors reported on Form XII? yes X no

Comments: All requirements met.

- XII. Linear Range Analysis (LRA) (guidelines pg. E-14, Form XII)
  - Was a linear range verification standard analyzed? yes X no
  - 2. Was the results within  $\pm 5\%$  of the true value? yes no

## Holding Times

Limits: Metals - 6 months; Hg - 30 days; Cn - 28 days.

- Verified date of sample receipt by laboratory 7-24-89
   Date of preparation/analyses 8-10-89
   Were holding times met? yes X no

Analyte	Matrix	Date Sampled	Prep Date	Holding Time		ng Time t/Met
Mercury	Low soil		8-10-89	23 days	30 days	Yes
Metals	Low soil		8-10-89	23 days	6 months	Yes

## 1. INORGANIC ANALYSIS DATA SHEET

	41 WEST CHIEF.
EPA	SAMPLE: NO.

	1	(NORGANIC A	NALYSIS DATA S		4725H01
STIVE	B VALLEY I AGE	TNC	contract: 68	-W8-0074	
b Name: SILVE			CIC Va	4725+	sog No.: 4725HC
b Code: SILV	/ER Ca	se No.:	SAS NO.		
trix (soil/		IL		Lab Sampl	
		•	•	Date Rece	ived: 07/24/89
evel (low/med	i): <u>LO`</u>	$\underline{\mathcal{N}}$	,	<b>Date</b> 11000	1
Solids:	LA	<b>ي</b> .			<b></b> .
0022001			L or mg/kg dry	weight):	MG/KG
Co	ncentration	nuits (nd)	L Or mg/ kg dri		
					V I
	CAS No.	Analyte	Concentration		М
	İ		18400.	-	P
	1 1 1 2 2 2 2 2	Aluminum_	19.8		P TAB
	1	Antimony_	83.2	,	P
	,	Arsenic_	a70.	E	PPDPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPPP
		Barium		i - i i	アi
	7440-41-7	Berlinm	14.6	i – i – — i	卫工格
	7440-43-9	Cadmium	15000.	i – i – – – i	₽i
•	7440-70-2	Calcium	<u>a1.9</u>	¦- j	$\overline{\mathcal{D}}$
	7440-47-3	Chrominm_	11.4	<i>B</i> i	Pi
	7440-48-4	Cobalt	a 39.		P i
	7440-50-8		30800.		₽i
	1,	Iron	1790.	-  i	<del>P</del>
•	1,100	Lead	1 4 5 6	-  i	<del>P</del>
المنازية المنازية المستارية	7439-95-4	Magnesium		-	P
	7439-96-5	Manganese	13 60.	-  i	CVI
	7439-97-6	Mercury	23.5	i-ii	EV
	, , , , ,	Nickel		i – i – – – i	Pi
		Potassium	3.1	i = i + N = i	FITARRA
	7782-49-2	Selenium_	97	1 1	B-
	7440-22-4	Silver	239.	ini i	1 1
	7440-23-5	Soutum	181	<u>B</u> N	<b>正</b> 1丁/8
	7440-28-0	THATTIUM_	48.7	i i	E TAB
	7440-62-2	Zinc	2170	i <b>-</b> i	<u>7  </u>
	7440-66-6	Cyanide_		i i i i i i i i i i i i i i i i i i i	NRI
		Cyanitae		i	!
(	· ———				Texture: MENIUM
lor Before:	BROWN	Clari	ty Before:		Texture: / E/)IU/
lor After:			ty After:		Artifacts:
and aller.					
mments:					
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				·	

Cas No.   Analyte   Concentration   C   Q   M			THORAL NEG.	1 AVALVETS DATA	SM	- Abrilla	E	PA SAMPLE	ino.
Lab Name: SILVER VALLEY LASS INC.  Case No.: SAS No.: 4735   SDG No.: 4735    Catrix (soil/water): COTL   Lab Sample ID:  Level (low/med): LOW   Date Received: 07/24/8  Concentration Units (ug/L or mg/kg dry weight): MG/KG    Cas No.   Analyte   Concentration   C   Q   M     7429-90-5   Aluminum   Se.20.   7     7440-36-0   Antimony   20/1.   M   P     7440-39-3   Barium   /97   E   P     7440-41-7   Beryllium   36   P     7440-43-9   Cadmium   /97.   E   P     7440-43-9   Cadmium   1/2   P     7440-47-3   Chromium   77.   W   P     7440-48-4   Cobalt   1/2.5   P     7440-48-4   Cobalt   1/2.5   P     7439-89-6   Trom   1/200   P     7439-92-1   Lead   1/220   P     7439-95-6   Manganese   1/220   P     7439-96-5   Manganese   1/220   P     7440-02-1   Nickel   21/5   P     7440-02-4   Silver   1/40.   P     7440-23-5   Soddium   1/8/1   P     7440-66-6   Zinc   1/5520.   P     7440-66-7   Zinc   1/5520.   P     7440-66-7   Zinc   1/5520.   P     7440-66-7   Zinc   1/5520.   P     1/40-66-8   Zinc   1/5520.   P     1/40-66-9   Zinc			THORONALC	middiscon Rugu.	-411	-		17254	<u> </u>
Attrix (soil/water): COIL Lab Sample ID:  Level (low/med): LOW  Concentration Units (ug/L or mg/kg dry weight): MG/KG  CAS No. Analyte Concentration C Q M    7429-90-5   Aluminum   2020   7   7440-36-0   Antimony   2021   N   7   7   7   7   7   7   7   7   7	Lab Name: SILVE	R VALLEY LABS	INC.	Contract: 6	W-8	8-0074		10011	<i></i>
Cas No.   Analyte   Concentration   C   Q   M	Lab Code: SIL	VER C	ase No.:	SAS No.	. : 4	47251	H sı	œ No.: 4	725
Concentration Units (ug/L or mg/kg dry weight): MG/KG    CAS No.	Matrix (soil/	water): 🕰	IL		L	ab Samp	le l	D:	
Concentration Units (ug/L or mg/kg dry weight): MG/KG    CAS No.	Level (low/me	d): <u>LO</u>	W		מ	ate Rec	eive	ed: 07/2	4/8
Cas No.   Analyte   Concentration   C   Q   M	% Solids:	73	3.0					•	,
CAS No. Analyte Concentration C Q M    7429-90-5   Aluminum   \$\frac{8}{2}\text{2}\text{2}   N   P   AS   Asenic   S90.   P   AS   Arsenic   S90.   P   As   At   At   Asenic   S90.   P   As   At   At   Asenic   S90.   P   As   At   At   At   Asenic   S90.   P   As   At   At   Asenic   S90.   P   As   At   At   At   At   At   At   At	· Co	ncentration	 Units (ug/	'L or mg/kg dr	y w	reight):	: M	SIKG	
7429-90-5   Aluminum   8620.				1	_	1			
7440-36-0   Antimony   201.   N   7   740   7440-38-2   Arsenic   590.   D   7440-39-3   Barium   747   E   7   7440-41-7   Beryllium   36   6   7   7440-43-9   Cadmium   91.4   P   7440-43-9   Cadmium   25100   P   7440-47-3   Chromium   77   U   P   7440-48-4   Cobalt   43.5   P   7440-48-4   Cobalt   43.5   P   7439-89-6   Iron   781000   P   7439-92-1   Lead   7920   P   7439-95-4   Magnesium   9930   P   7439-95-6   Manganese   7330   P   7439-96-5   Manganese   7330   P   7440-02-0   Nickel   21.5   P   7440-02-0   Nickel   21.5   P   7440-02-4   Silver   47.5   P   7440-22-4   Silver   47.5   P   7440-22-4   Silver   47.5   P   7440-22-4   Silver   47.5   P   7440-66-6   Zinc   75520   P   7440-66-6   Zinc   75520   P   7440-66-6   Zinc   75520   MR   MR   MR   MR   MR   MR   MR   M		CAS No.	Analyte	  Concentration	ı C	Q	М		
7440-36-0   Antimony   201.		7429-90-5	Aluminum	81020.	-;	<u> </u>	7		
7440-38-2   Arsenic   590.			•	:	-i-			TAS	
7440-39-3   Barium		•	•	·	-i-	' <del></del>	D	2 // -	
7440-41-7   Beryllium   3b   6   7   7440-43-9   Cadmium   91.4		•	•	· <del></del>	-1-	É	171		
7440-43-9   Cadmium   91.4		•	•	·	18		101		
7440-70-2   Calcium   25100   P		•	•	·	. 142	' <del></del>	ibi	TAR	
7440-48-4   Cobalt	•	•	•		·¦-;	' <del></del>		7.0	
7440-48-4   Cobalt		•	•		77		<del> </del>		
7439-97-6   Mercury   1.9   2.7   1.440-02-0   Nickel   21.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1		•			_		10		
7439-97-6   Mercury   1.9   2.7   1.440-02-0   Nickel   21.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1		•	· ——·		i-i		1		
7439-97-6   Mercury   1.9   2.7   1.440-02-0   Nickel   21.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1		•			iri		कि		
7439-97-6   Mercury   1.9   2.7   1.440-02-0   Nickel   21.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1		•	·		<u>'i-i</u>	<del></del>	7		
7439-97-6   Mercury   1.9   2.7   1.440-02-0   Nickel   21.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1	en en en en en en en en en	•	·		i-i	<del></del>	5	•	
7439-97-6   Mercury   1.9   2.7   1.440-02-0   Nickel   21.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   7   1.5   1.5   7   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1.5   1		•			i-i		5		
7782-49-2   Selenium					i-i		7	•	
7782-49-2   Selenium		•	• • • • • • • • • • • • • • • • • • • •		i-i		3		
7782-49-2   Selenium		•	·		17		7	D	
7440-22-4   S11Ver   97.5   7440-23-5   Sodium   181   8   7   7440-28-0   Thallium   3.6   5   5   7   7   7   7   7   7   7   7		•	•			SE N		mgo -	احمح
7440-62-2   Vanadium   79.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0					i-i		7	00/20/11	, ~·
7440-62-2   Vanadium   79.0   1   7440-66-6   Zinc   75500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     74500.     7450		•	· · · · · · · · · · · · · · · · · · ·		Bi		F		
7440-62-2   Vanadium   79.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0   7.0						5 N	=	<b>SK</b> T	
Cyanide		•				<del>~</del> ,,	F	•	•
Cyanide		•			i-i		≠i		
clor Before: LCUN Clarity Before: Texture: MEDI  clor After: YELLOW Clarity After: Artifacts:					i-i				
olor After: KELLOW Clarity After: Artifacts:	(								
	olor Before: J	Bravil	Clarit	y Before:			Text	ure: ME	
mments:	olor After:	LELLOW	Clarit	y After:		•	Arti	facts: _	
	Comments:					•			

## INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

·	•	INURGANIE			4725H03
Lab Name: SI	LVER VALLEY LABS.	. INC.	contract: 68	-W8-0074	
Lab Code:		se No.:	SAS No.	: 47a51	H soc No.: 4725
		TI		Lab Sampl	Le ID:
Matrix (sol	1/water): <u>\$0</u>				eived: <u>07/24/89</u>
Level (low/				Date Rece	erved: Oliatio
% Solids:	77	<u>.9</u>			ME IKE
	Concentration	Units (ug/	L or mg/kg dry	weight):	Mar/a
	CAS No.	   Analyte	Concentration	c q	M
	7429-90-5	Aluminum	7650		PP 79 1 48
	7440-36-0	Antimony	114.	<u> - -</u>	B 1200
	7440-38-2	Arsenic_	<u> </u>	-! <i></i>	<del>-</del>
	7440-39-3	Barium	130.	_  <u> </u>  _	<u>7</u>
	7440-41-7	Beryllium	.81	<u>  4    </u>	声工格
	7440-43-9	Cadmium_	82.0	!-!!	<u> </u>
	7440-70-2	Calcium_	2610	-	$\frac{T_{a}}{a}$
	7440-47-3	Chromium_	1.0	<u> </u>	
	7440-48-4	Cobalt	38.5	! <b></b>	
		Copper	459	<b>-</b>	
		Iron	148000	!-!	7
		Lead	9880	<b>_                                   </b>	<del>5</del>
en en en en en en en en en en en en en e		Magnesium		-	<del>学</del> <del>学</del>
		Manganese			evi
	7439-97-6	Mercury	1	!-!;	2
•	7440-02-0	Nickel	28.8	_	P mas Tas
	17440-09-7	Potassium		B	E MAS IN
	7782-49-2	Selenium_	<u> 43.7</u>	-  <del>-&gt;- </del>	E 08/22/89
	7440-22-4	Silver	30.3	8	<u> </u>
	1	Sodium	173	一工工	ETARAS
		Thallium_	4.1		E TAB RAS
	7440-62-2	Vanadium_	= 21.2	¦ — ¦ ———	$\overline{\varphi}$ i
•	17440-66-6	Zinc	15100		AIP I
		Cyanide		¦ —	
	, l			· ·	Mest
Color Befor	e: Blown	Clari	ty Before:		Texture: MENT
Color After	: YELLOW	Clari	ty After:	<del></del>	Artifacts:
Comments:					

ALLEY LABS.  ca  car): SO  50  entration  AS No.  429-90-5 440-36-0	INC.  ISE NO.:  OTL  OW  O.3  Units (ug/  Analyte  Aluminum_	Contract: 68  SAS No.  Concentration	La Da	-0074 1725 b Samp	H sole	ID: red: Q'	7/a4/8
ca ser): SO 53 entration AS No. 429-90-5 440-36-0	Units (ug/	SAS No.	La Da	b Samp te Rec	H sple	ID: red: Q'	: 472. 7/24/8
entration AS No. 429-90-5 440-36-0	Units (ug/	L or mg/kg dry Concentration	La Da	b Samp	ple eiv	ID: red: Q' G/K	7/a4/8
50 2ntration AS No. 429-90-5 440-36-0	Units (ug/ Analyte Aluminum	  Concentration	Da v we	te Rec	: <u>M</u>	ed: 0'	
50 entration AS No. 429-90-5 440-36-0	Units (ug/ Analyte Aluminum	  Concentration	y we	eight)	: <u>M</u>	G/K	
AS No. 429-90-5 440-36-0	Units (ug/	  Concentration	1 1	<del></del>	Ī	1	٤.
AS No. 429-90-5 440-36-0	Analyte	  Concentration	1 1	<del></del>	Ī	1	5.
429-90-5 440-36-0	Aluminum_		   c     _   .	Q	M	_	
429-90-5 440-36-0	Aluminum_		<u> _ </u> .	•	i	;	
440-36-0	• —	25100.			-!	.}	
			!-!-		15		
			!-!	<u> </u>	-! #	SAKFI	
			<b> -</b>  -		15	1	
				<u> </u>	⊹₺	1	
			<b>22</b>   -		15	1-1-10	
			¦ — ¦ -		Ⅎᆍ	1740	
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•			-i-		10	,	
,	•		-i-		CV		
		<del></del>	-i-		P		
•					19		
•				F N	E	TAS	RAS
					17		
40-23-5	Sodium		<u>B</u>				
40-28-0	Thallium	23.2	_1_	N	上	SKI.	
40-62-2	Vanadium_	46.5	_/_		19		
40-66-6	Zinc	15700.	_!_		1		
]	Cyanide_		- -		INC	-	
POLINA		v Refore:	-1-		'' Tex	ture:	MEDI
	•	<del></del>			A+	ifacts	
LOW	Clarit	y Alleli			~		-
	440-38-2 440-39-3 440-41-7 440-43-9 440-47-3 440-48-4 440-50-8 439-89-6 439-95-4 439-95-4 439-96-5 439-97-6 40-02-0 40-09-7 82-49-2 40-23-5 40-28-0 40-62-2	440-36-0   Antimony   440-38-2   Arsenic   440-39-3   Barium   440-41-7   Beryllium   440-43-9   Cadmium   440-47-3   Chromium   440-48-4   Cobalt   440-50-8   Copper   439-95-4   Magnesium   439-95-4   Magnesium   439-97-6   Mercury   40-02-0   Nickel   40-09-7   Potassium   40-23-5   Sodium   40-23-5   Sodium   40-66-6   Zinc   Cyanide   Count   Cyanide   Count   Cyanide   Count   Coun	440-36-0   Antimony   200.  440-38-2   Arsenic   72/6.  440-39-3   Barium   /20  440-41-7   Beryllium   /.9  440-43-9   Cadmium   /20,  440-70-2   Calcium   82/100  440-47-3   Chromium   33.2  440-48-4   Cobalt   /0.1  440-50-8   Copper   840,  439-89-6   Iron   586-00,  439-95-4   Magnesium   33/200  439-96-5   Manganese   2770,  40-09-7   Potassium   5.5  40-02-0   Nickel   27.0  40-22-4   Silver   86.0  40-23-5   Sodium   747  40-28-0   Thallium   23.2  40-66-6   Zinc   75700.    Cyanide	440-36-0   Antimony   200.   440-38-2   Arsenic   77/6.   440-39-3   Barium   /320   440-41-7   Beryllium   /.9   6   440-43-9   Cadmium   /.00,   440-70-2   Calcium   82100   440-47-3   Chromium   33.2   440-48-4   Cobalt   /0.1   6   440-50-8   Copper   840.   439-89-6   Iron   586.00   439-92-1   Lead   /3600   439-95-4   Magnesium   338.00   439-96-5   Manganese   2770.   400-02-0   Nickel   27.0   400-02-0   Nickel   27.0   400-02-1   Selenium   15.4   400-02-1   Selenium   15.4   400-02-1   Sodium   400-02-1   Sodium   400-02-1   Sodium   400-02-1   Vanadium   400-02-1   Vanadium   400-02-1   Vanadium   400-02-1   Vanadium   400-02-1   Cyanide   Clarity Before:	440-36-0   Antimony   200.   N   440-38-2   Arsenic   77/a.   440-39-3   Barium   /200   E   440-41-7   Beryllium   /1.9   E   440-43-9   Cadmium   /200.   440-70-2   Calcium   82100   440-47-3   Chromium   33.2   440-48-4   Cobalt   /201   E   440-50-8   Copper   840.   839-89-6   Iron   586-00.   839-92-1   Lead   13600   839-95-4   Magnesium   32800   839-96-5   Manganese   2770.   839-97-6   Mercury   5.5   440-02-0   Nickel   2720   82-49-2   Selenium   15.4   T   N   40-23-5   Sodium   440-23-5   440-36-0   Antimony   200.   N   P   440-38-2   Arsenic   77/a.   P   P   440-39-3   Barium   /220   E   P   P   440-41-7   Beryllium   /9   P   P   P   P   P   P   P   P   P	440-36-0   Antimony	

reduct and restrainment

## U.S. EPA -- CLP

## INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

4725H05

b Name: SILVER VAI	LEY LABS.	. INC.	Contract: 68					
SILVER			CIC NO	. L	4725h	SD	G No.:	47251
b Code:	Ca	se No.:	3A3 NO.					
trix (soil/wate	r1: 50:				ab Samp.			
ICLIX (2011) adde			•	D:	ata Dari	a i ve	d: 07	1 <u>8418</u>
evel (low/med):	10	<del></del>		υ.	TCE VCC.		<u> </u>	
Solids:	78.	<u>3</u>				• •		
_		maite (NO)	L or mg/kg dry	W	eight):	M	1/16	
Concer	itration	Onics (dg/						
		1	   composite	C	l I 0	M		
CA	s No.	Analyte	Concentration	<u> </u>	i	1		
	70-00-5	Aluminum_	2810			产		
174	29-90-3	Antimony_		_	N		TAS	
174	40-38-0	Arsenic_	320	_				
174	40-38-2	Barium	134		<u>E</u>	P P		
174	40-33-3	Beryllium	,47	1		1	-40	
174	40-43-9	Cadmium	149	_		<u>  4</u>	TAS	
174	40-43 3	Calcium_	89700	_		多		
	40-47-3	Chromium_	10.9	7		5		
174	40-48-4		<u> </u>	_₹		5		
174	40-50-8	Copper	613	_		子子子	•	
174	39-89-6	Iron	44800.	_		5		
174	39-92-1	Lead	9550	-		5		
174	39-95-4	Magnesium	19780.	-		10 1		
174	39-96-5	Manganese	3090	¦ —		<u>cv</u>		
174	39-97-6	Mercury	1.5	-	}	1		
174	40-02-0	Nickel	·	8		9 9 E		
174	40-09-7	Potassium	794	1	+ 1	F	728	RAS
177	82-49-2	Selenium_	60.9	-	' <u></u>	9	•	
174	40-22-4	Silver	84.6	Ē		171		
	40-23-5	Sodium	12.7	-	SN		<del>1 18</del>	
	40-28-0	Thallium_	8.6	B		P		
	40-62-2	Vanadium_	26400.			1		
174	40-66-6	Zinc		i –		INRI		
<u> </u>		Cyanide		i _	İ			
(		1		_				MEDIL
olor Before: B	MUM	clari'	ty Before:		_	Tex	ture:	/ Boxe
$\overline{\cdot}$	LLOW	clari	ty After:		_	Art	ifacts	:
		•						
omments:								
<del></del>								

		THORESHIE	1. Analysis data :	curry-	EFA SAMPLE NO.	
·		INORGANIC	MANISIS DAIA		47a5H06	
Lab Name: SIL	ER VALLEY LABS	INC.	Contract: 6	8-W8-0074	11001100	
Lab Code: SILVER Case No.:			SAS No.	sas no.: <u>4725</u> H		
Matrix (soil,	/water): <u>50</u>	IL		Lab Samp	le ID:	
Level (low/me	ed): <u>L</u>	$\Sigma W$	•	Date Rec	eived:07/24/89	
% Solids:	78	<u>ما.</u>				
C	oncentration	Units (ug/	'L or mg/kg dry	y weight):	MG/KG	
	CAS No.	Analyte	  Concentration	ici q	   M	
	i			-	<del>                                     </del>	
		Aluminum_	11100.	!-! <b>~;</b> !	$\left  \frac{\mathcal{P}}{\mathcal{P}} \right $	
		Antimony_	40.8	_  <u>N </u>		
	7440-38-2		<u> </u>	!-! <del></del> !	PITAB	
	17440-39-3		944	<u> </u>	P	
	,	Beryllium	.85	<u>  8    </u>	F. A. C.	
	7440-43-9		62.3	<b>-                                   </b>	TAB	
	17440-70-2	•	46900.	<del>,,</del>	<del>7</del>	
	17440-47-3		.71	[쓰]]	P	
	•	•	64.4	╎ <b></b> ╎	P	
	•	Copper   Iron	<u>256</u> 4400.	├ <b>-</b> ╎	5	
	7439-89-6  7439-83-1	Lead			<del></del>	
the second second	7439-92-1  7439-95-4	•	13300.		<u>7</u> 1	
	17439-96-5	•	201000		1	
	[7439-97-6	•	×,24	-	ev Bensel	
	7440-02-0		69.7	-	P	
	7440-09-7	•	1870	-ii	<del>'P</del> i	
	7782-49-2		5.6		P Dents	
	7440-22-4		/3.7	_ i	PITAR	
	7440-23-5			<u>B</u>	<del>7</del> 1	
	7440-28-0		8.5	SN	EI JAB	
•	7440-62-2		34.8		7	
•	7440-66-6	•	18800.			
	i	Cyanide			KI	
,				_  .	_1	
olor Before:	Brown	Clarit	y Before:		rexture: MAIU	
olor After:	YELLOW	Clarit	y After:		Artifacts:	
omments:						
,						

#### U.S. EPA --CLP EPA SAMPLE NO. INORGANIC ANALYSIS DATA SHEET Contract: 68-W8-0074 Lab Name: SILVER VALLEY LABS., INC. SAS No.: 4725H SDG No.: Lab Code: SILVER Case No.: Lab Sample ID: Matrix (soil/water): Date Received: 0764/89 Level (low/med): % Solids: Concentration Units (ug/L or mg/kg dry weight): MS/KS |Concentration|C| М Analyte CAS No. 9710 7429-90-5 | Aluminum 1THS 37.6 |7440-36-0 |Antimony\_ |7440-38-2 |Arsenic 384 Barium [7440-39-3 В Fil [7440-41-7 | Beryllium BATI 102 |7440-43-9 | Cadmium 90700 |7440-70-2 | Calcium 9.9 |7440-47-3 |Chromium 20.4 [7440-48-4 | Cobalt\_ 264. |7440-50-8 | Copper 64900. |7439-89-6 | Iron 3250 |7439-92-1 |Lead 20700 |7439-95-4 | Magnesium | 19100. [7439-96-5 | Manganese جع |7439-97-6 |Mercury\_ 14.0 |7440-02-0 |Nickel 1880 |7440-09-7 | Potassium E I TAS 9.2 |7782-49-2 |Selenium P Silver 17440-22-4 B 254 |7440-23-5 |Sodium 可和 **5** Y |7440-28-0 |Thallium 101 20.5 | Vanadium 17440-62-2 P 17600. [7440-66-6 |Zinc Cyanide MEDIUA

Comments:					
Color After:	YELLOW	Clarity	After:		Altifacts.
	<b>\</b> /	_		-	Artifacts:
Color Before:	Promis	clarity	Before:		Texture

## U.S. EPA -- CLP

#### EPA SAMPLE NO. INORGANIC ANALYSIS DATA SHEET Contract: 68-W8-0074 Lab Name: SILVER VALLEY LABS., INC. SDG No.: 4 sas No.: 4725H Lab Code: SILVER Case No.: Lab Sample ID: Matrix (soil/water): SOIL Date Received: 07/24/89 Level (low/med): % Solids: Concentration Units (ug/L or mg/kg dry weight): MG/K6 Analyte | Concentration | C| М CAS No. 14000 |7429-90-5 |Aluminum 丁积 805 |7440-36-0 | Antimony\_ 348. |7440-38-2 |Arsenic 7 286 7440-39-3 | Barium 1.5 0 [7440-41-7 | Beryllium JAR III. 82.3 |7440-43-9 | Cadmium 7440-70-2 | Calcium 85800 16.5 17440-47-3 | Chromium 33.3 |7440-48-4 |Cobalt 567 17440-50-8 | Copper 49200 |7439-89-6 | Iron 3510 |7439-92-1 |Lead 18400 [7439-95-4 | Magnesium 14300 |7439-96-5 | Manganese 1.1 |7439-97-6 [Mercury] P |7440-02-0 |Nickel THERMS 2400 7440-09-7 | Potassium 13.2 |Selenium 17782-49-2 36.9 |7440-22-4 |Silver B 276 |7440-23-5 |Sodium 14.2 Thallium 17440-28-0 1 26.9 | Vanadium 17440-62-2 18300 Zinc · 7440-66-6 Cyanide Texture: Clarity Before: \_\_\_\_ Color Before: Artifacts: Clarity After: Color After: Comments:

# INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO	MPLE NO.
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4725409
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•		•	69	141	9_007#	14	125	H 07
Lab Name: SILV	ER VALLEY LABS.	, INC.	Contract: 68	-W	1-00/4	 }		110
Lab Code: SIL	VER Ca:	se No.:	SAS No.	:4	F125H	SDG	; No.:	465F
	(water): <u>50</u>	IL			ab Sampi			
	1 ~ 1	<u> </u>	•	מ	ate Rec	eived	1: 07	124/8
Level (low/me		<del></del>						
Solids:	<u> 1a.</u>	6						
; Julius.			وموقر بدوال وا	7.5	eichtl:	MS	IKG	
Co	oncentration	Units (ug/	L or mg/kg dry	W	erdire).	· <u>···</u>		-
	•	1		ı	<b>(</b>	!!!		
	CAS No.	Analyte	Concentration	C	Q	М		
	l Cab No.			<u> </u> _		_		
	7429-90-5	Aluminum	10900	!-	\	8	J HB	
	7440-36-0	Antimony_	107	!-	N_	<b>3</b> -1	7 40	
	7440-38-2	Arsenic	295	-	¦	5		
	7440-39-3	Barium	229	_	<u>E</u>	5		
	7440-41-7	Beryllium	1.4	8		<del>     </del>   -	- A O	
	7440-43-9	Cadmium	90.2		!	产	BKT	
	7440-70-2	Calcium	38700	_		7		
	7440-47-3	Chromium	/6.3	_		3		
	7440-48-4	Cobalt	20.1	_		产		
	7440-50-8	Copper	498	_		7		
		Iron	68700	:		户		
e	7439-92-1		6970	_		尹		-
* · ·	7439-95-4	Magnesium	11100.	<b>-</b>	l	7		
	[7439-95-4 [7439-96-5	Mancanese		ا_ ا		P		
	17439-97-6	IMATCUTY	5,0	_		쌓		
	17440-02-0	Nickel	16.3	_	l	12		J. 3-
	17440-02-0	Potassium		_	l	19		<b>一次</b>
	17782-49-2		21.9	_	ISN	产产	7 43	7
•	17440-22-4	Silver	36.2	_	l	$\frac{p}{2}$		
	7440-23-5	Sodium	220	8	l	7 _		
•	17440-28-0	Thallium	4.1	_	<u>5 N</u>	Ę	工名	
•	17440-62-2	Vanadium	31.2	<b>_</b>		12		
	17440-62-2	Zinc	15900.	_	l			
•	/440-66-6	Cyanide		_	I	巫		
		Cyan.120		I_				<b>4.</b> .
color Before:	PROUNT	Clari	ty Before:			Text	ure:	MEDI
olor selore:	7					a <b></b> + i	facts	:
Color After:	YELLOW !	Clari	ty After:		_	<b>75.</b> w. i	,	<u> </u>
Comments:								
								<del></del>
<del></del>								<del></del>

# INORGANIC ANALYSIS DATA SHEET

EPA.	SAMPLE NO	1.

4725 H10

•			- han 68	_wa_	-0074	TIA	2 110
Lab Name: SILV	ER VALLEY LABS.	. INC.	contract: 68			. ·	11
		se No.:	SAS No.	: 4	-125H	SDG"N	4 <u>725/</u>
Lab Code: SIL	- Ca	se No					
Matrix (soil/	water): St	TL			b Sampl	_	
Matrix (SOLL)				5-4	h- 7	_:/	27/24/89
Level (low/me	ed): <u>LO</u>	$\underline{w}$		Dai	te kece	staea: (	71/01/11/01
% Solids:	79	.0					
* 20TTM2.					ichtl.	MS/K	<b>3</b> ·
Co	oncentration	Units (ug/	L or mg/kg dry	we	agne, .	, There	سلا
			,	1 1		1 1	
	CAS No.	Analyte	Concentration	C     _	Q	імі І <u>—</u> І	
	7429-90-5	Aluminum	20200.	1_1_		里设置	~ <b>&amp;</b> O
	17440-36-0	Antimony_	10.1	141	<u>N</u>	1 1 60	1301
	7440-38-2	Arsenic	54 70-1	181		1000	3,50,
	7440-39-3	Barium	408	!_!-	<u> </u>	1 2	•
	17440-41-7	Beryllium	1.6	!-!-		1 1 1 1 2	0
	7440-43-9	Cadmium		!_!-		里丁米	3
	7440-70-2	Calcium_	9640	!-!-		<u>P</u>	
	7440-47-3	Chromium_	18.5	<u> -</u>  -		7	
	7440-48-4	Cobalt	10.9	181-		7	
	7440-50-8	Copper	<u> </u>	!-!-		7	
	7439-89-6		25500.	!-!-		户	
	7439-92-1	Lead	108		<u>-</u>	P	
, e		Magnesium		-}-		7	¥
		Manganese	303	_   -		CV	
	7439-97-6	Mercury	10	<u>                                      </u>		1	
	7440-02-0	Nickel	17.0	¦−¦-	·	10	
	•	Potassium	6050	4	N	戶尺	<del>/&gt;&gt;</del>
	7782-49-2		5.10			7	•
	17440-22-4	silver	389	UB.		10	
	17440-23-5	Sodium	,23	u	N	IP UJ	PK.
•		Thallium_ Vanadium_	37.7	131		17	
	17440-62-2	Vanadidm_   Zinc	302.	$i^{-}i^{-}$		P	
•	7440-66-6	Cyanide_		$i^-i^-$		INRI	•
		Cyaniuc		I = I		1	
	<u></u>	.					e: MENI
Color Before:	Blown	Clari	ty Before:				
Color After:	YELLOW	Clari	ty After:			Artifa	cts:
Comments:	•						

			:	1.	CIF	<del></del>	1	EPA SAMPLEINO.
			INORGANIC A	analysis data	SA.	rri.		4725H11
ab Na	me: SILVE	R VALLEY LABS	., INC.	Contract: 6		-	_  -	
ab Co	de: SIL	VER C	ase No.:	SAS No.	: 4	1251	4 5	бос но.: <u>4725</u> 4
atrix	(soil/v	water): <u>S</u>	XL.			ab Sam		•
evel	(low/med	i): <u>LO</u>	$\mathcal{W}$		ם	ate Red	ceiv	red: 07/a4/89
Soli			<u>1.a</u>					
	Co	ncentration	Units (ug/	'L or mg/kg dry	y w	veight)	: <u>N</u>	Va/KG_
		CAS No.	   Analyte	  Concentration	10	1 0	I M	1
		i		İ	.i_			
4		•	Aluminum	19500.	_	}	P	!
		17440-36-0	Antimony_	142.	<u> </u> _	14		1743
		17440-38-2	Arsenic	751.	. _		P	
		17440-39-3	Barium	1068	1_	<u> </u>	1	
		7440-41-7	Beryllium	4.3	18		10	Į.
	•	7440-43-9	Cadmium	185	1_		P	1JA8
		17440-70-2	Calcium_	249000	_			1
		7440-47-3	Chromium_	18.2	_		IZ	<b>j</b> .
		7440-48-4	Cobalt	5.9	10		17	1
		7440-50-8	Copper	770	1_1		P	
		7439-89-6	Iron	156000	1_1		P	
		7439-92-1	Lead	12500	1_1		10	
,		7439-95-4	Magnesium	29700	1_1		17	
		•	Manganese	19400	I I I		10	
		7439-97-6	Mercury	1.9	1 - 1		100 P	
		7440-02-0	•	32.1			12	
		•	Potassium	4790	$I \subseteq I$		17	_
		7782-49-2	•	19.9		N	E	7 28
		7440-22-4		60.6			FPF	
	i	7440-23-5			BI		17	
		7440-28-0		24.1		SN	F	T789
		7440-62-2		38.0			10	_
	i	7440-66-6	Zinc	24000			171	
	į		Cyanide_		=!		NP.	
	را				_!	<del></del>		ДA
lor B	efore: ţ	Seown	Clarit	y Before:		-	Tex	ture: /VEDIUA
lor A	fter:	ELLOW	Clarit	y After:			Art	ifacts:
mment:	s:							

EPA SAMPLE NO. INORGANIC ANALYSIS DATA SHEET Contract: 68-W8-0074 Lab Name: SILVER VALLEY LABS.. INC. SAS No.: 4725H SDG No.: 4 Lab Code: SILVER Case No.: Lab Sample ID: Matrix (soil/water): SOIL Date Received: 07/24/8 Level (low/med): % Solids: Concentration Units (ug/L or mg/kg dry weight): MG/RG Analyte (Concentration(C) CAS No. M 7429-90-5 | Aluminum 4880 TAS 7440-36-0 | Antimony 49.3 7440-38-2 | Arsenic 839 7440-39-3 | Barium 557 |7440-41-7 |Beryllium| 1.6 EAT 17440-43-9 | Cadmium 131 17440-70-2 | Calcium 167000 17440-47-3 | Chromium u 1.0 |7440-48-4 |Cobalt *5*3.3 |7440-50-8 | Copper 456 17439-89-6 | Iron 32000 |7439-92-1 |Lead 6900 |7439-95-4 | Magnesium 23400 |7439-96-5 | Manganese | 23700 .73 |7439-97-6 |Mercury |7440-02-0 |Nickel 36.3 |7440-09-7 | Potassium 1690. 178 |7782-49-2 |Selenium 2.5 |7440-22-4 |Silver 5.גג BI 7440-23-5 | Sodium 206 1T 48 |7440-28-0 |Thallium 5 N 210

_	<del>'</del> '		<del></del> ' ~		A A .
Color Before: T		Clarity Bef	ore:	Texture:	MEDIUI
Color After:	YEUOW	Clarity Aft	er:	Artifacts	
Comments:					
				·	

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18.6

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17440-62-2 | Vanadium

IZinc

Cyanide

7440-66-6

# U.S. EPA -- CLP

			1	1 5 j./k <u>\$</u>	EPA SAMPLE NO.
	1	INORGANIC A	NALYSIS DATA S		4725H13
ab Name: SILVE	R VALLEY LABS.	, INC.	Contract: 68	-W8-0074	
ab Code: SILV	ER Ca	se No.:	SAS No.	: 4725H	SDG No.: 4725HC
Matrix (soil/W		IL		Lab Sampl	
Level (low/med	1 ~ .	_		Date Rece	eived: <u>07/24/8</u> 9
	72	<u>.a</u>			MAC 11)C
Cor	ncentration	Units (ug/	L or mg/kg dry	weight):	1 <u>1/16</u> /KG
		1	  Concentration	1 1 (	M
	CAS No.	Analyte	Concentration	i_ii	
	7429-90-5	Aluminum	15200.	_   _	产了名
	17440-36-0	Antimony	53.9	1_1 <u>N</u>	其丁%
	7440-38-2	larsenic	211	I_I	<del>[</del>
	7440-39-3	Barium	209	1_1 <u>E</u>	$\lfloor \frac{P}{A} \rfloor$
	7440-41-7	Beryllium	1.4	<u>                                      </u>	7
	7440-43-9	Cadmium	93.9	<b> _ </b>	卫工程
•	7440-70-2	Calcium	14500	I_I	<u>P</u>
	7440-75-2	Chromium	11.8	I_!	<u>P</u>
	7440-48-4	Cobalt	24.6	_	7
	17440-50-8	Copper	231	l_l	$ \overline{\underline{\rho}} $
	7439-89-6		86100	<b> _ </b>	7
		Lead	4430	<b> _ </b>	更
			6340	!_!	
	7439-96-5				
	7439-97-6	Mercury	. 3.3	<u> _ </u>	<del>CV</del>
	7440-02-0	Nickel	22.4		<u> </u>
	7440-09-7		2490	_	7
•	7782-49-2	Selenium	25.1	!_! <u>X</u>	更了相
	7440-22-4	Silver		_	! <del>T</del>
	7440-23-5	Sodium	215	<u> B </u>	ETAB PLITAB PLITAB WELL
	7440-28-0	Thallium	1.2	18 N	更了始
	7440-62-2	Vanadium_	40.5		<del>  左</del>
	7440-66-6	Zinc	8580	!_!	לבו
		Cyanide_			<u> </u>
				.	1—1 AA
	\ <u></u>		_		Texture: MEDIU
color Before:	BROWN	Clari	ty Before:		
color After:	YELLOW	Člari	ty After:		Artifacts:
:omments:					
<del></del>					

# 1... INORGANIC ANALYSIS DATA SHEET:

		INORGANIC I	analysis data s	SHE	ET	100
,			a ambana mba 65	3 140		4725H14
Lab Name: SIL			Contract: 68			
Lab Code: SI	LVER Ca	se No.:	7251 sas no.	: 4	17251	4 sog no.: 47251
Matrix (soil,	/water): <u>S</u>	DIL	oc wh	La	b Samp	le ID:
Level (low/me	ed): <u>Lo</u>	$\underline{w}$	, so	Da	te Rec	eived: 07/24/89
% Solids:	ولر	<u>w</u> - <u>9</u> 77.4 ,	ic ka.			
C	oncentration	Units (ug/	'L or mg/kg dry	, we	eight):	MG/KG
		1 21	  Concentration		Q	
	CAS No.	Analyte	Concentration		¥	MI
	7429-90-5	Aluminum	4440			更
	7440-36-0	• •	/83	i		<u>E</u> 1749
•	7440-38-2	Arsenic	555	i i		Pi
	7440-39-3		46.0		٤	<u>7</u> 1
		Beryllium	.63	181		1 <u>2</u> 1
	7440-43-9	•	//3	$I \subseteq I$		7 JAS
•	7440-70-2		18900	$I \subseteq I$		<u> 7</u> 1
	7440-47-3		·	141		<b>产</b> <b>产</b>
	7440-48-4	Cobalt	76.8	1_1		PI
	7440-50-8	Copper	446.	<u>                                     </u>	!	<u>7</u> 1
•	7439-89-6	Iron	263000	_1_		<u>P</u> i
the state of the state	7439-92-1	Lead	12200.	_1.	l	<u></u>
	7439-95-4	Magnesium	5880.	_1.	[	<b>ヹ</b> i
	7439-96-5	Manganese	1370	_1_		<u> 7</u> 1
	17439-97-6	Mercury	<u>81</u>			<u>マ</u>         フ **3
	17440-02-0	Nickel	31.4			<u>#</u> !
	•	Potassium		81		$\frac{p}{ p }$
	•	Selenium_	84.0	_!_	<u>N</u> !	直工格
	• • •	Silver	39.8	_!-		$\frac{p}{2}$ !
	7440-23-5	Sodium		41-		F 749
	•	Thallium_	6.0		<u> </u>	E 1.48
	7440-62-2	Vanadium_		41_		
,	7440-66-6	Zinc	17500	_!-		P
		Cyanide_		_!-	!:	ملاإ
(	J			_!_		!
Color Before:	BROWN	Clarit	y Before:		1	Texture: MEDIU.
Color After:	YELLOW	Clarit	y After:			Artifacts:
Comments:				•		
-	<del></del>				<del></del>	
<del></del>						<del></del>
						· · · · · · · · · · · · · · · · · · ·

receiving and environment

#### REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW

### \*\*\*guideline references are from Contract #787\*\*\*

Case No.: 12334 TDD No.: F08-8909-08

Site: Richardson Flats

Contractor Laboratory: Keystone-Houston

Data Reviewer: Annette Sackman Date of Review: 10-3-89

Sample Matrix: 5 Low Soils, 15 Low Waters

Analysis: Mercury

Sample Nos.: MHL955, MHL956, MHP500, MHP501, MHP502, MHP503, MHP504,

MHP506, MHP507, MHP509, MHP510, MHP511, MHP512, MHP513,

MHP514, MHP515, MHP516, MHP517, MHP518, MHP519

- (X) Data are acceptable for use.
- ( ) Data are acceptable for use with qualifications noted.
- ( ) Data are preliminary pending verification.
- ( ) Data are unacceptable.

Action required by DPO?

No X Yes The following items require action:

Action required by project officer?

No X Yes

The following are our findings:

All requirements were met for the mercury analysis. No flags were assigned.

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## Inorganic Data Completeness Checklist

- X Inorganic analysis data (Form I)
- X Initial calibration and continuing calibration verification (Form IIA)

CRDL standard for AA and ICP (Form IIB)

X Blanks (Form III)

ICP interference Check sample (Form IV)

X Spike sample recovery (Form VA)

Post digestion spike sample recovery (Form VB)

- X Duplicates (Form VI)
- X Laboratory control sample (Form VII)

Standard addition results (Form VIII)

ICP serial dilutions (Form IX)

- X Holding times (Form X)
- X Instrument detection limits-quarterly (Form XI)
- X ICP interelement correction factors-quarterly (Form II)
- X ICP linear ranges-quarterly (Form XIII)

Raw data for interference checks

- X Raw data for calibration standards
- X Raw data for blanks

Raw data for CRI and/or CRA

- X Raw data for samples
- X Raw data for duplicates
- X Raw data for spikes
- X Traffic reports

## Contract Compliance

- I. Initial and Continuing Calibration Verification (ICV and CCV) (guidelines pg. E-4, Form IIA)
  - 1. Was instrument calibrated daily and each time it was set up?

    yes X no:
  - Were instruments calibrated using 1 blank and several standards?
    yes X no
  - Were calibration verifications within 90-110%?
     yes X no
  - 4. Were continuing calibrations run at 10% frequency?

    yes X

    no
- 5. Were the raw data correctly transcribed onto Form IIA?

  yes X no

  Comments: All requirements met.

II. CRDL Standards for ICP (CRI) and/or AA (CRA) (guidelines pg. E-6,
Form IIB)

1. For ICP analysis, were standards (CRI) @ 2x the CRDL or the IDL (whichever was greater) analyzed at the beginning and the end of each sample run, or at a minimum of twice/8 hour shift, whichever was more frequent?

yes no

- 2. For furnace AA analysis, were standards (CRA) analyzed at the beginning and the end of each sample run, or at a minimum of twice/8 hour shift, whichever was more frequent? yes no
- 3. Were the CRI and/or CRA standards analyzed after the ICV?

  yes no
- 4. Were these data reported on Form IIB?

  yes no
- 5. Were the raw data correctly transcribed onto Form IIB?
  yes no
  Comments: Not required.

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## III. Blanks (guidelines pg. E-6, Form III)

- 1. Was the initial calibration blank (ICB) analyzed immediately after the initial calibration verification (ICV)?

  yes X no
- 2. Was a continuing calibration blank (CCB) analyzed immediately after each continuing calibration verification (CCV)?

  yes X

  no
- 3. Was a preparation blank (PB) analyzed at a frequency of at least 1 in 20 samples?

  yes X no NA
- 4. How many elements were detected above the CRDLs? 0 (if 0, go to question 5)
  - 4a. How many elements were detected in the blanks at greater than one-half the amount detected in any sample?
- 5. Were raw data correctly transcribed onto Form III?
  yes X no
  Comments: All requirements met.

## IV. ICP Interference Checks (ICS) (guidelines pg. E-7, Form IV)

- 1. Was the ICS analyzed twice per 8 hour shift? yes no
- 2. Were the ICSs analyzed before and after samples?

  yes no
- 3. Was any massive interference detected?

  yes

  no
- 4. Were the ICSs within  $\pm 20\%$  mean value? yes no
- 5. Were raw data correctly transcribed onto Form IV?
  Comments: Not required.

spike to be added for each analyte and for other information about the Spike Sample Analysis.

2. Were recoveries within the 60-120% limit.

yes X no

3. Was the recovery of the spike > 40%? (if yes, go to question 4).

6b. Were these data correctly transcribed onto Form VIII?

6e. Were all MSA obtained data marked with an 'S' or an S+ on form I?

yes

no

Comments: Not required.

- IX. ICP Serial Dilution (L) Analysis (guidelines pg. E-12, Form IX)
  - 1. Was an ICP serial dilution performed on each group of samples of a similar matrix (i.e., soil, water) and concentration (i.e., low, high) or for each sample delivery group, whichever was more frequent?

yes

no

2. For elements with concentrations >10X the CRDL, did any exceed the serial dilution results by more than 10%? (if no, skip questions 3 and 4)

yes

no

% difference =  $\frac{I - S}{I}$  X 100

I = Initial Sample Result

- S = Serial Dilution Result (instrument reading X5)
- 3. Which elements had concentrations that exceeded the 10% criteria?
- 4. Did the laboratory flag these data with an 'E' on Form IX?

  yes

  no
- 5. Were the raw data correctly transcribed onto Form IX?

  yes

  no

Comments: Not required.

## X. Instrument Detection Limits (IDL) (guidelines pg. E-13, Form XI)

- Were IDLs reported for each analyzed element? yes X no
- Were IDLs reported for each instrument used? yes X
- Did the IDLs meet the contract requirements? (refer to pg. E-13, SOW 787)

yes X no

Comments: All requirements met.

### XI. Interelement Corrections for ICP (guidelines pg. E-13, Form XII)

1. Were correction factors reported on Form XII?

yes X no

Comments: All requirements met.

### XII. Linear Range Analysis (LRA) (guidelines pg. E-14, Form XII)

- Was a linear range verification standard analyzed? yes X no
- 2. Was the results within  $\pm 5\%$  of the true value? yes no

# Holding Times

Limits: Metals - 6 months; Hg - 30 days; Cn - 28 days.

- Verified date of sample receipt by laboratory 7-21-89
   Date of preparation/analyses 8-3-89
- 3. Were holding times met? yes X

Analyte	Matrix	Date Sampled	Prep Date	Holding Time	Holding Time Limit/Met
Mercury	Low soil		8-3-89	13 days	30 days yes
Mercury	Low Water		8-3-89	13 days	30 days yes

## U.S. EPA - CLP

•	1 INORGANIC ANALYSI	S DATA SHEET	EPA SAMPLE NO.
Lab-Name: KEYSTONE E		ract: 68-W8-0005	MHL955
Lab Code: KEYTX	Case No.: 12334	SAS No.:	SDG No.: MHL955
Matrix (soil/water):	SOIL	Lab Sample	⊇ ID: 890773003
Level (low/med):	LOW	Date Rece	ived: 07/21/89

98.3

% Solids:

Concentration Units (ug/L or mg/kg dry weight): MG/KG

						-
1	1	ł	; ;		-	;
ICAS No.	: Analyte	Concentration	1 C !	Q	l M	1
!	!	!	1.1		_	. !
17429-90-5	Aluminum_	¦	1 1		INR	1
17440-36-0	Antimony_	! !	; ;		INR	1
17440-38-2	Arsenic	<b>!</b>	1 1		INR	;
17440-39-3	Barium	<b>!</b>	1 1		INR	1
17440-41-7	Beryllium		1 1		INR	;
17440-43-9	Cadmium	ļ !	1 1		! NR	1
17440-70-2	Calcium	•	; ;		INR	;
17440-47-3	Chromium_	<b>;</b>	: :		INR	;
17440-48-4	Cobalt		; ;		INR	;
17440-50-8	Copper		; ;		INR	;
	:Iron		: :		INR	;
17439-92-1	Lead	<b>!</b>	1 1		INR	}
17439-95-4	Magnesium		! !		INR	;
17439-96-5	Manganese		1 !		INR	;
17439-97-6	Mercury	0.99	; ;		:CV	;
17439-02-0	Nickel	}	1 1		! NR	1
17440-09-7	Potassium	1	: :		! NR	,
17782-49-2	Selenium_	<b>!</b>	1		INR	1
17440-22-4	Silver	† 	1 1		! NR	1
17440-23-5	Sodium	<b>{</b>	1 1		: NR	ł
17440-28-0	Thallium_	}	1 1		! NR	i
17440-62-2	Vanadium_		1 1		INR	!
17440-66-6	Zinc		1 1		INR	1
!	Cyanide	!	; ;		: NR	;
		   	1_1.		_ !	i

Color	Before:	Clarity	Before:	Texture:
Color	After:	Clarity	After:	Artifacts:
Commer	nts:			
				0007

7/87

### U.S. EPA - CLP

	1			
INORGANIC	ANAI VETE	DATA	SHEET	

Lab Name: KEYSTONE ENVIRONMENTAL Contract: 68-W8-0005 |

Lab Code: KEYTX

Case No.: 12334

SAS No.:

SDG No.: MHL955

Matrix (soil/water): SOIL

Lab Sample ID: 890773006

Level (low/med): LOW

Date Received: 07/21/89

% Solids:

97.9

				 	_
CAS No.	Analyte	  Concentration 		! ! M !	;
17429-90-5	Aluminum		1 1	 INR	1
17440-36-0			: :	INR	;
17440-38-2			1 1	INR	1
:7440-39-3		<del>-</del>	1 1	INR	1
17440-41-7	Beryllium	<b>†</b>	1 1	INR	;
17440-43-9			1 1	INR	1
17440-70-2			: :	INR	;
17440-47-3	Chromium	<b>!</b>	: :	INR	;
17440-48-4			: :	INR	:
:7440-50-8			: :	INR	;
17439-89-6			: :	INR	;
17439-92-1			: :	INR	:
17439-95-4			: :	INR	!
17439-96-5	Manganese	<u> </u>  -	: :	INR	;
17439-97-6	Mercury	1.30	1 1	ICV	;
17439-02-0	Nickel	<b>:</b>	1 1	:NR	ł
17440-09-7	Potassium	<b>;</b>	; ;	INR	1
17782-49-2	Selenium_	;	1 1	INR	;
17440-22-4	Silver	}	; ;	INR	;
17440-23-5	Sodium	1 1		INR	1
17440-28-0	Thallium_	<b>.</b>	1 1	INR	i
17440-62-2	Vanadium_	<b>;</b> 1	1 1	INR	1
17440-66-6		}		INR	;
1	Cyanide		1 1	INR	1
1	1		1_1	 	. !

60101	Before:	Clarity	De l'Ole:	lexcare:
Color	After:	Clarity	After:	Artifacts:
Commer				

### U.S. EPA - CLP

•	1 INORGANIC ANALYSIS DATA SHEET		EPA SAMPLE NO.		
Lab Name:	KEYSTONE E	NVIRONMENTAL	•		MHP500
Lab Code:	KEYTX	Case No.:	12334 SAS No.	. :	SDG No.: MHL955
Matrix (so	il/water):	SOIL		Lab Sample	ID: 890773007
Level (low	/med):	LOW		Date Recei	ved: 07/21/89

98.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

					~
CAS No.	:   Analyte 	  Concentration 		Q 	M
17429-90-5	'Aluminum_		;		INR
17440-36-0	Antimony_	<b>!</b>	1 1		INR I
17440-38-2			1		INR I
17440-39-3	Barium	1			INR
17440-41-7	Beryllium	1	: :		INR I
17440-43-9	Cadmium	,			NR
17440-70-2	Calcium	!	: 1	1	INR I
17440-47-3	Chromium_	<b>,</b>	! !		INR :
17440-48-4	Cobalt		: :		INR :
17440-50-8	Copper	1	; ;		INR :
17439-89-6	!Iron	•	; ;		NR I
17439-92-1	Lead		! !		INR I
17439-95-4	:Magnesium	1	: :		INR I
17439-96-5	Manganese	1	; ;	•	NR :
<b>7439-97-</b> 6	Mercury	. 0.88	; ;		ICV !
17439-02-0	Nickel	}	: :		INR I
17440-09-7			: :		INR :
17782-49-2			; ;		NR :
17440-22-4	Silver		; ;		INR
17440-23-5			: :		NR I
17440-28-0	_		; ;		INR !
17440-62-2			: ;		NR
17440-66-6	:Zinc		1		INR !
	Cyanide		: :		NR :
i	¦		; _		i i

% Solids:

Color	Before:	Clarity Before:	Texture:
Color	After:	Clarity After:	Artifacts:
Commer	nts:		
	·		
	. — — — — — — — — — — — — — — — —		

#### U.S. EPA - CLP

•	1 INORGANIC ANALYSIS DATA SHEET	EPA SAMPLE NO.
	THURSDAY PROCESS DATA CHEET	MHP501
Lab Name:	KEYSTONE ENVIRONMENTAL Contract: 68-W8-00	

Matrix (soil/water): SOIL

Lab Sample ID: 890773008

SDG No.: MHL955

Date Received: 07/21/89

% Solids:

Level (low/med):

82.4

LOW

Lab Code: KEYTX Case No.: 12334 SAS No.:

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.						
	: :CAS No.	   Analyte	¦ ¦Concentration	: : :C:	Q	
	1	1				
7440-38-2   Arsenic	17429-90-5	'Aluminum_	·			INR
	17440-36-0	Antimony_	1	1 1		INR I
	17440-38-2	Arsenic	;	1 1		INR :
	17440-39-3	Barium	1	: :		INR I
	17440-41-7	Beryllium	<b>!</b>	1 1		INR I
	17440-43-9	Cadmium	† !	; ;		INR :
	17440-70-2	Calcium	1	- 1		INR I
	17440-47-3	Chromium_	<u> </u>	: :		INR :
7439-89-6   Iron	17440-48-4	:Cobalt	<b>;</b>	1		INR I
	17440-50-8	Copper	•	1 1		INR I
	1 <i>7</i> 439-89-6	Iron	<b>}</b>	1 1		INR I
17439-96-5   Manganese	17439-92-1	!Lead	† 	; ;		INR I
17439-97-6   Mercury	17439-95-4	Magnesium	·	; ;		INR :
17439-02-0   Nickel	17439-96-5	:Manganese	1	1 1		:NR :
7440-09-7   Potassium	:7439-97-6	Mercury	8.20	1 :		ICV :
17782-49-2   Selenium	17439-02-0	Nickel	:	; ;		INR
	17440-09-7	Potassium	,	; ;		INR
				1 1		INR :
17440-28-0   Thallium	17440-22-4	Silver	!	: :		INR :
17440-62-2   Vanadium				1 1		INR :
17440-66-6   Zinc	17440-28-0	:Thallium_	,	; ;		INR I
Cyanide	17440-62-2	:Vanadium_	1	; ;		INR I
			1	1 1		INR
		Cyanide		: :		INR !
	·		! !	-1-1-		_

Color	Before:	Clarity Before:	Texture:
Color	After:	Clarity After:	Artifacts:
Commer	nts:		

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2 1 33 8**9**15 3

		u.s.	EPA - CLP			
•		THOOGANIC	1 ANALYSIS DATA 9	succ.	<del>-</del>	EPA SAMPLE NO.
		THOUGHIATO I		. حاسدا ال	•	MHP502
Lab Name: KE	YSTONE ENVIR	ONMENTAL	Contract: 6	3 <b>8-</b> 83	3-0005	
Lab Code: K	EYTX Ca	se No.: 12	334 SAS No.:	:		SDG No.: MHL955
Matrix (soil	/water): SOI	L		Lab	Sampl	e ID: 890773009
Level (low/m	ed): LOW	l		Date	e Rece	ived: 07/21/89
% Solids:	92.	Φ ,	<i>-</i> .			
	Concentrati	on Units (	ug/L or mg/kg o	dry v	veight	): MG/KG
	:	]				<del></del>
	ICAS No.	Analyte	Concentration	(C)	a	1 M 1
	!	1	! 	-		!!
	17429-90-5			: :		INR :
	17440-36-0			; ;		INR
	17440-38-2			$A_{ij}$		INR
	17440-39-3			1 1		INR
	17440-41-7			1 1		INR
	17440-43-9			; ;		INR :
	17440-70-2			1 1		INR I
4 - 4 - 4	17440-47-3			1 1		INR I
er e	17440-48-4			1 1		INR I
	17440-50-8			1 1		INR :
	17439-89-6					INR I
	17439-92-1			1 1		INR I
	17439-95-4	-				INR I
	17439-96-5			1 1		INR :
	17439-97-6					ICV
	17439-02-0			1 1		INR
	17440-09-7			: :		INR
	17782-49-2			; ;		INR I
	17440-22-4			i i		INR
	17440-23-5	•		i i		INR I
	17440-28-0	-		i i		INR :
	17440-62-2	_		i i		INR I
	17440-66-6			) i		INR I
	!	: :CASUIGE:	! !	· ·		!NR
		'	·	- ' '		''
Color Before:		Clarity	/ Before:		-	Texture:

Clarity After: Artifacts: Color After: Comments:

#### U.S. EPA - CLP

	1		
INORGANIC	ANALYSIS	DATA	SHEET

EPA SAMPLE NO.

Lab-Name: KEYSTONE ENVIRONMENTAL Contract: 68-W8-0005 !

Lab Code: KEYTX Case No.: 12334

SAS No.:

SDG No.: MHL955

Matrix (soil/water): WATER

Lab Sample ID: 890773010

Level (low/med):

LOW

Date Received: 07/21/89

% Solids:

!	1	}	; ;		1	!
ICAS No.	: Analyte	Concentration	:::	Q	l M	ł
	1	·	1_1		_	- ;
17429-90-5	Aluminum_	<b>†</b>	; ;		INR	1
17440-36-0	Antimony_	}	: :		INR	;
17440-38-2	Arsenic	!	: :		INR	;
17440-39-3	Barium		: :		INR	1
17440-41-7	:Beryllium	•	: :		INR	1
17440-43-9	Cadmium	•	: :		: NR	ł
17440-70-2	Calcium	; ;	1 1		INR	1
17440-47-3	Chromium_	1 }	: :		INR	ł
17440-48-4	Cobalt	<b>;</b>	: :		INR	1
17440-50-8	:Copper	; ;	: :		INR	ï
17439-89-6	!Iron	<b>!</b>	1 1		INR	;
17439-92-1	Lead	!	; ;		INR	;
17439-95-4	Magnesium	<u> </u>	: :		INR	1
17439-96-5	!Manganese	i	: :		:NR	1
17439-97-6	Mercury	0.20	:::		ICV	;
17439-02-0	Nickel	<b>!</b> 1	1 1		INR	i
17440,-09-7	Potassium	<b>!</b>	; ;		! NR	;
17782-49-2	Selenium_	1 1	1 :		INR	!
17440-22-4	!Silver	† 1	: :		INR	1
17440-23-5	Sodium	<b>!</b>	; ;		:NR	1
17440-28-0	!Thallium_	! !	; ;		INR	;
17440-62-2	Vanadium_	<b>J</b> 1	; ;		: NR	i
17440-66-6	!Zinc	<b>;</b>	: :		INR	1
1	Cyanide	<b>!</b> !	; ;		INR	ļ
1	.;	!	1_1		_	. !

Color	Before:	Clarity	Before:	Texture:
Color	After:	Clarity	After:	Artifacts:
Commer	nts:			

## U.S. EPA - CLP

•	TNORGANIC A	1 NALYSIS DATA	CUEET	EPA SAMPLE NO.
Lab Name: KEYSTONE	ENVIRONMENTAL	Contract:		MHP504
Lab Code: KEYTX	Case No.: 123	34 SAS No.	:	SDG No.: MHL955
Matrix (soil/water	): WATER		Lab Sample	ID: 890773011
Level (low/med):	LOW		Date Recei	ved: 07/21/89
% Solids:	0			•

Concentration Units (ug/L or mg/kg dry weight): UG/L

						<del>-</del>
CAS No.	: : Analyte	: Concentration	; c;	Q	; ! M	;
			<u>'</u> – <u>'</u>		120	• [
17429-90-5	_		i i		INR	
17440-36-0			1 1		INR	í
17440-38-2					INR	;
17440-39-3			1 1		INR	;
17440-41-7	Beryllium	•	! !		INR	;
17440-43-9	Cadmium	•	; ;		INR	í
17440-70-2	Calcium	;	1 1		INR	ł
17440-47-3	Chromium_	!	: :		INR	;
17440-48-4	Cobalt		; ;		INR	1
17440-50-8	Copper		; ;		INR	1
17439-89-6	!Iron		: :		INR	1
17439-92-1	Lead		: :		: NR	1
17439-95-4		•			! NR	;
17439-96-5	!Manganese:	1	; ;		:NR	;
17439-97-6	-		: U:		ICV	;
17439-02-0			1 1		INR	ľ
17440-09-7			} }		INR	1
17782-49-2	Selenium				INR	;
7440-22-4	_		1		INR	†
17440-23-5			1 1		INR	!
17440-28-0			: :		! NR	;
17440-62-2	_				I NR	!
17440-66-6	:Zinc				INR	1
•	Cyanide				NR	;
	icyanitue '	! !			!	:
'	'		′ <b></b> '			• '

Color	Before:	Clarity Before:	Texture:				
Color	After:	Clarity After:	Artifacts:				
Comments:							

#### U.S. EPA - CLP

•	1 INORGANIC ANALYSIS DATA SHEET		SAMPLE NO.	,
	INURGANIC ANALYSIS DATA SHEET	;	MHP506	- i !
ab Name:	KEYSTONE ENVIRONMENTAL Contract: 68-W8-0005	!		_;

Matrix (soil/water): WATER

0

KEYTX Case No.: 12334 SAS No.: SDG No.: MHL955

Lab Sample ID: 890773012

Level (low/med): LOW Date Received: 07/21/89

% Solids:

Lab Code:

1	1 .	1	1	i	1	;
ICAS No.	! Analyte	(Concentration	C	: 0	: M	1
!	.	!	!_	!	. 1	_ ;
17429-90-5	Aluminum_	;	!	l	INR	1
17440-36-0	Antimony_	) 	1	<b>!</b>	INR	;
17440-38-2	Arsenic	!	.1	; ;	INR	;
17440-39-3	Barium	1	;	<b>!</b> !	INR	1
17440-41-7	Beryllium	! !	;	<u>;</u>	INR	1
17440-43-9	Cadmium	1	1	) 	INR	;
17440-70-2	Calcium	!	;	ł	INR	1
17440-47-3	Chromium_	i !	1	i	INR	;
17440-48-4	Cobalt	<b>!</b>	1	!	INR	;
17440-50-8	Copper	ľ	1	!	INR	1
	Iron		;	1 1	INR	1
	!Lead		;	:	INR	1
17439-95-4	:Magnesium	<u> </u>	;	;	INR	-
17439-96-5	!Manganese	) \$	;	<b>!</b> 1	INR	1
17439-97-6	Mercury	0.20	;U	ŀ	ICV	;
17439-02-0	Nickel	1 1	!	i	INR	;
17440-09-7	Potassium	1 1	1	1 •	!NR	;
17782-49-2	Selenium_	} \$	:	! !	INR	1
17440-22-4	Silver	! !	1	<b>;</b>	INR	1
17440-23-5	Sodium	] }	;		INR	ļ
17440-28-0	:Thallium_	 	;		INR	;
17440-62-2	Vanadium_	<u> </u>	!	}	INR	;
17440-66-6	Zinc	1 1	!	ł	INR	;
	Cyanide	1 }	1	,	INR	ł
1	.		1_		;	.;

Color	Before:	Clarity	Before:	Texture:
Color	After:	Clarity	After:	Artifacts:
Commer	its:			

## U.S. EPA - CLP

			INORGAN	1 C ANALYSIS DATA	SHEET		AMPLE NO.   1P507
Lab	Name:	KEYSTONE	ENVIRONMENTAL	. Contract:	68-W8-0005	!	
Lab	Code:	KEYTX	Case No.:	12334 SAS No.	. :	SDG No.	: MHL955
Mat	rix (sc	oil/water)	: WATER		Lab Sample	ID: 89	90773013
Lev	vel (low	/med):	LOW		Date Recei	ved: 07	7/21/89

Concentration Units (ug/L or mg/kg dry weight): UG/L

% Solids:

	,					
  CAS No. 	   Analyte 	:  Concentration 		Q	; ; M	1
17429-90-5	Aluminum_	!	; ;		INR	- 1
	Antimony_		; ;		INR	1
17440-38-2	Arsenic		1 :		INR	!
	Barium		1		INR	:
	Beryllium		1 1		! NR	}
	Cadmium_		1 1		INR	1
	Calcium		1 1		INR	1
17440-47-3			1 1		INR	1
17440-48-4	-		1		INR	ł
17440-50-8	Copper		: :	•	INR	ļ
17439-89-6			1 1		INR	!
	Lead		1 1		:NR	1
17439-95-4	Magnesium		; ;		:NR	!
17439-96-5	Manganese		1 1		INR	1
17439-97-6	=		: U:		ICV	;
17439-02-0			: :		INR	1
	:Potassium		; ;		INR	ŀ
17782-49-2	Selenium_	] !	; ;		INR	;
17440-22-4	Silver	1 1	; ;		INR	;
17440-23-5		<b>;</b>	; ;		INR	;
17440-28-0		i 1	; ;		: NR	1
17440-62-2	_		; ;		INR	ŀ
17440-66-6	:Zinc	<b>!</b>	: :		INR	1
!	Cyanide	<b>,</b>	: :		INR	!
1	,	·	; _ ;		_ !	. !

			ن داد درد داد داد دی در در داد در <sub>این</sub> در داد در <sub>این</sub> داد در در در داد در در در داد در در در در در در در در در در در در در	
Commer	nts:			
Color	After:	Clarity	After:	Artifacts:
Color	Before:	Clarity	Before:	Texture:

## U.S. EPA - CLP

	1			
INORGANIC	ANALYSIS	DATA	SHEET	

44.75 A

EPA SAMPLE NO.

MHP509

Lab Name: KEYSTONE ENVIRONMENTAL

Contract: 68-W8-0005

SAS No.:

\_\_\_\_\_

SDG No.: MHL955

Lab Code: KEYTX Case No.: 12334

Lab Sample ID: 890773014

Matrix (soil/water): WATER
Level (low/med): LOW

Date Received: 07/21/89

% Solids:

0

Concentration Units (ug/L or mg/kg dry weight): UG/L

: :CAS No.	   Analyte	: :Concentration	101	: : M	¦ 
;	1	,	1 1	;	;
17429-90-5	Aluminum	 	171	 INR	- ;
17440-36-0			1 1	INR	;
17440-38-2			1 1	INR	;
17440-39-3			1 1	INR	;
:7440-41-7			1 1	INR	;
17440-43-9			!!	INR	;
17440-70-2	Calcium		1 1	INR	1
17440-47-3			1 1	INR	;
17440-48-4			1 1	: NR	1
17440-50-8	Copper		1 1	INR	;
17439-89-6			1 1	: NR	;
7439- <del>9</del> 2-1	!Lead		; ;	INR	1
17439-95-4			; ;	INR	:
17439-96-5	: Manganese	{	: :	INR	-
17439-97-6			: U:	ICV	1
17439-02-0			1 1	INR	;
17440-09-7	Potassium	· ·	1 1	INR	1
17782+49+2	:Selenium_	! }	; ;	INR	;
17440-22-4	Silver	! !	; ;	: NR	1
17440-23-5			; ;	INR	;
17440-28-0	!Thallium_	! 1	; ;	INR	;
17440-62-2	Vanadium_	· .	! !	INR	;
17440-66-6	Zinc		! !	INR	1
1	Cyanide		;	INR	;
1	1		1_1	 _	- ;

Color Before:	Clarity Before:	Texture:
Color After:	Clarity After:	Artifacts:
Comments:		

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#### U.S. EPA - CLP

		3.3.			
. •		INORGANIC A	1 NALYSIS DATA	SHEET	EPA SAMPLE NO.
lah Name Ki	EVETONE ENUITE	IONIMENITAI	Contract:	58_H8_000	MHP510
Lad Name: K	ETSIONE ENVIR	CINITEIN I AL	Contract:	00-M0-000	J
Lab Code:	KEYTX Ca	se No.: 123	34 SAS No.	:	SDG No.: MHL955
Matrix (soi	l/water): WAT	ER		Lab Samp	le ID: 890773015
Level (low/	med): LOW			Date Rec	eived: 07/21/ <b>89</b>
% Solids:	o o				
	Concentrati	on Units (i	ig/L or mg/kg	drv weigh	t): UG/L
	•				
	CAS No.		Concentration		; M ;
	7429-90-5			- ' - '	-       NR
	17440-36-0	Antimony			INR
	17440-38-2	Arsenic			INR I
	17440-39-3	Barium	•,,	1 1	INR
	7440-39-3  7440-41-7	Beryllium		; ;	INR
	17440-43-9			1 1	INR !
	17440-70-2			; ;	INR
•	1 <b>744</b> 0-47-3			1 1	INR :
	17440-48-4	Cobalt		1 1	INR
	17440-50-8	Copper!		1 !	INR
	17439-89-6	Iron		1 1	INR I
	17439-92-1	Lead		i i	INR
	17439-95-4	Magnesium		ii	INR
	17439-96-5			: ;	
	17439-97-6				
	17439-02-0			1 1 '	INR
	17440-09-7			1 1	INR
	17782 -49 -2				INR
	17440-22-4			1 1	INR !
	17440-23-5			ii	INR I
	17440-28-0			i i	INR I
	17440-62-2			i i	INR (
	7440-66-6			) 1 • •	INR I
	¦	Cyanide  		_	
Color Before		Clarity	Before:		Texture:
Color After:		Clarity	After:		Artifacts:
Comments:			•		

を 100mm では、100mm では

### U.S. EPA - CLP

•	1 INORGANIC ANALYSIS DATA 9	EPA SAMPLE NO.
Lab Name: KEYSTONE E	ENVIRONMENTAL Contract:	MHP511
Lab Code: KEYTX	Case No.: 12334 SAS No.:	SDG No.: MHL955
Matrix (soil/water):	WATER	Lab Sample ID: 890773016
Level (low/med):	LOW	Date Received: 07/21/89
% Solids:	0	

  CAS No.	   Analyte 	  Concentration 	]  C 	Q	   M 	;
17429-90-5	Aluminum_		; -		INR	٠,
	Antimony_		!	;	! NR	;
	Arsenic		;	!	INR	1
	Barium		¦	;	:NR	1
17440-41-7			!	!	! NR	1
17440-43-9	Cadmium		1	 	INR	i
	Calcium		:		:NR	;
	Chromium_		ľ	ļ	!NR	ŀ
	Cobalt		!	<b>;</b>	! NR	ļ
	:Copper		!	ŀ	INR	!
	:Iron		!	<b>!</b>	! NR	¦
17439-92-1		! .	<u> </u>	<b>!</b>	INR	;
17439-95-4	Magnesium	1	1	<b>;</b>	INR	!
17439-96-5	:Manganese		}		INR	;
17439-97-6	!Mercury	0.20	l U l	!	! CV	;
17439-02-0	!Nickel	1 1	1 ;		!NR	;
17440-09-7	!Potassium		1 :	<b>:</b>	! NR	1
17782-49-2	Selenium_	] 1	1 1	<b>!</b>	!NR	1
17440-22-4	Silver		;		INR	ï
17440-23-5	Sodium	· !	:		INR	1
17440-28-0	!Thallium_	!	; ;	•	INR	1
17440-62-2	Vanadium_	! !	; ;		INR	;
17440-66-6	Zinc	! 1			! NR	1
!	:Cyanide	·	;		INR	į
1		! ! 	! _ !		:	. !

Color	Before:	Clarity	Before:	Texture:
Color	After:	Clarity	After:	Artifacts:
Commer	nts:			

## U.S. EPA - CLP

	1 INDRGANIC ANALYSIS DATA SHEET		EPA SAMPLE NO.			
Lab	Name:	KEYSTONE	ENVIRONMENTA			MHP512
Lab	Code:	KEYTX	Case No.:	12334 SAS	No.:	SDG No.: MHL955
Ma	trix (sc	oil/water)	: WATER		Lab Sam	ple ID: 890773017
Le	vel (low	/med):	LOW		Date Re	ceived: 07/21/89

% Solids:

Concentration Units (ug/L or mg/kg dry weight): UG/L

0

CAS No.	   Analyte 	:  Concentration 	 	; ; M	1 1
17429-90-5	Aluminum	·		 INR	١.
17440-36-0			1 1	INR	1
17440-38-2			1 1	INR	1
17440-39-3			1 1	INR	;
17440-41-7			: :	INR	!
17440-43-9	•		1 1	INR	ł
17440-70-2			1 1	INR	1
17440-47-3			1 1	INR	ť
17440-48-4				INR	;
17440-50-8	Copper		1 1	INR	;
17439-89-6			1 1	INR	;
17439-92-1	Lead		1	INR	;
17439-95-4	Magnesium			INR	;
17439-96-5	Manganese		; ;	INR	ł
17439-97-6	<b>-</b> '		: U:	ICV	1
17439-02-0	·		: :	INR	1
17440-09-7			1 1	INR	ł
17782-49-2	Selenium		1 1	INR	:
17440-22-4	_		1 1	:NR	1
17440-23-5	Sodium		1 1	INR	1
17440-28-0	Thallium_	}	; ;	:NR	;
17440-62-2	'Vanadium_	· · · · · · · · · · · · · · · · · · ·	1 1	INR	ł
17440-66-6	:Zinc	•	1. [	INR	i
!	Cyanide	}	; ;	! NR	ł
1	·		I_I,	 _	.!

Color	Before:	Clarity Before:	Texture:
Color	After:	Clarity After:	Artifacts:
Commer	its:	•	

### U.S. EPA - CLP

	1				EPA	SAMPLE NO.
INORGANIC	ANALYSIS	DATA	SHEET	1		
				:		MHP513

Lab Sample ID: 890773020

Lab Name: KEYSTONE ENVIRONMENTAL Contract: 68-W8-0005 !\_\_\_\_\_

Lab Code: KEYTX Case No.: 12334 SAS No.: SDG No.: MHL955

Level (low/med): LOW Date Received: 07/21/89

% Solids: 0

all sections.

Matrix (soil/water): WATER

CAS No.	: : Analyte :	  Concentration 	  C  	Q	: : M	1
17429-90-5	Aluminum		1 7		INR	1
17440-36-0			: :		INR	ł
	Arsenic		1		INR	:
17440-39-3			1 1		INR	;
	Beryllium				INR	;
	Cadmium		1 1		INR	1
17440-70-2	Calcium	 	1 1		INR	1
17440-47-3			1 1		INR	J.
17440-48-4	_		1 1		INR	1
17440-50-8	Copper		1 1		INR	1
17439-89-6		!	1 1		INR	;
17439-92-1		•	; ;		INR	1
17439-95-4	Magnesium	}	1 ;		INR	;
17439-96-5	Manganese	}	: :		INR	ŧ
17439-97-6	!Mercury	0.20	:01		CV	;
17439-02-0	Nickel	!	1 1		: NR	1
17440-09-7	Potassium		1 1		INR	1
17782-49-2	Selenium_	<u> </u>	1 1		:NR	!
17440-22-4.	Silver	!	1 1		INR	¦
17440-23-5	Sodium	<u> </u>	1 1		INR	1
17440-28-0	Thallium_	 	1 1		: NR	1
17440-62-2	:Vanadium_	1 1	; ;		INR	!
17440-66-6	:Zinc	!	: :		INR	;
!	Cyanide	<b>!</b>	; ;		INR	-1
!		 	.1_1.		·	.!

Color	Before:	Clarity Before:	Texture:
Color	After:	Clarity After:	Artifacts:
Commer	nts:		

#### U.S. EPA - CLP

	TNORGANI	1 1C ANALYSIS DATA	SHEET	EPA SAMPLE NO.	
Lab Name: KEYSTO	NE ENVIRONMENTAL		68-W8-0005	MHP514	
Lab Code: KEYTX	Case No.:	12334 SAS No.	.:	SDG No.: MHL955	
Matrix (soil/wate	er): WATER		Lab Sample	ID: 890773021	
Level (low/med):	LOW		Date Recei	ved: 07/21/89	

Concentration Units (ug/L or mg/kg dry weight): UG/L

ICAS No.	: Analyte	;  Concentration 	; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	; M	;
17429-90-5	:Aluminum_	!	; -;	 INR	<b>;</b>
	Antimony		: :	INR	-
17440-38-2	Arsenic		; ;	INR	;
	Barium		: :	INR	ł
	Beryllium		1 1	INR	1
17440-43-9	Cadmium	!	1 1	INR	i
17440-70-2	Calcium	1 1	1 1	INR	ŀ
17440-47-3	Chromium_	) 	1 1	INR	1
17440-48-4	Cobalt	; ;	! !	INR	1
17440-50-8	Copper	<b> </b>	: :	INR	1
17439-89-6	:Iron	!	1 1	INR	1
17439-92-1	Lead	<b>;</b>	1 !	INR	ľ
17439-95-4	:Magnesium	<u> </u>		INR	1
17439-96-5	:Manganese	! !	; ;	:NR	;
17439-97-6	Mercury	0.20	: U :	CA	;
17439-02-0	Nickel	1	; ;	INR	;
17440-09-7	Potassium	1	; ;	INR	ļ
	Selenium_		; ;	INR	1
17440-22-4	Silver	! !	; ;	INR	;
17440-23-5	Sodium		; ;	INR	i
17440-28-0	Thallium_	1	; ;	INR	ì
	/Vanadium_		: :	INR	;
17440-66-6	Zinc	;	; ;	INR	i
1	Cyanide	<b>!</b> 1	: :	INR	!
	.		;_;	 _	. ;

% Solids:

Color	Before:	Clarity	Before:	Texture:
Color	After:	Clarity	After:	Artifacts:
Commer	nts:		•	

### U.S. EPA - CLP

Case No.: 12334

	INORGANIC	1 ANALVETS	DATA	QUEET.		SAMPLE	
	THOUGHATC	HINETSIS	חוח	SHEET		MHP515	i
KEYSTONE	ENVIRONMENTAL	Contra	act:	68-W8-0005	!		i

SAS No.:

KEYTX Matrix (soil/water): WATER

Lab Sample ID: 890773022

SDG No.: MHL955

Level (low/med): LOW Date Received: 07/21/89

% Solids:

Lab Name:

Lab Code:

·Ο

CAS No.		,					
	1	1 .		1 1		!	i
7440-36-0   Antimony	CAS No.	! Analyte	Concentration	101	Q	: M	;
7440-36-0   Antimony	1			!-!		-!=-	. !
7440-38-2   Arsenic		_		<u> </u>			i
				1 1			i
			-	; ;			1
				1 1			1
		•		1 1			i
				1 1			;
				1 1			1
				; ;			;
7439-89-6   Iron				; ;			ļ
				1 1			!
			1	: :			ì
				1 1			1
7439-97-6   Mercury		-		ŀ l			ľ
7439-02-0   Nickel		_		: :			;
		,		101			ł
17782-49-2   Selenium				!!			ł
				! !			;
				; ;			;
							;
17440-62-2     Vanadium				1 1			1
17440-66-6   Zinc	17440-28-0	Thallium_				! NR	;
Cyanide	17440-62-2	Vanadium_	•	1 1		INR	1
	17440-66-6	Zinc	•	1 1		INR	;
	·	Cyanide		1 1		INR	1
	1		· 	- 1		_	;

Color	Before:	Clarity	Before:	Texture:
Color	After:	Clarity	After:	Artifacts:
Commer	nts:			
			·	

### U.S. EPA - CLP

•	TNORG/	1 NIC ANALYSIS DATA	CUETT	EPA SAMPLE NO.
Lab-Name: KEY	STONE ENVIRONMENT		58-W8-0005 :	MHP516
Lab Code: KE	YTX Case No.	: 12334 SAS No	.: 9	SDG No.: MHL955
Matrix (soil/	water): WATER		Lab Sample	ID: 890773023
Level (low/me	d): LOW		Date Receiv	ed: 07/21/89
" Calida.	0			

l ICAS No.	:   Analyte	  Concentration	C	Q	
		<u> </u>	. ! - ! .		-!!
	Aluminum_				INR :
	Antimony_		1 1	•	INR I
	Arsenic		1 1		INR :
17440-39-3	Barium	<b>!</b>	1 1		INR :
17440-41-7	Beryllium	;	1 1		INR
17440-43-9	Cadmium	!	1 1		INR I
17440-70-2	Calcium	<del>!</del> 1	1 1		INR
17440-47-3	Chromium_	<b>!</b>	; ;		INR I
17440-48-4	Cobalt	† 1	1 1		INR I
17440-50-8	:Copper		1 1		INR :
17439-89-6	:Iron		1 1		INR I
17439-92-1	Lead	i 1	1 1		:NR :
17439-95-4	!Magnesium		: :		INR :
17439-96-5	!Manganese		1 1		INR I
17439-97-6	Mercury	8.00	; ;		ICV I
17439-02-0	Nickel	<b>!</b>	1 1		INR I
17440-09-7	(Potassium	<u>.</u>	1 1		INR I
17782-49-2	Selenium_	i' 1	1 1		INR :
17440-22-4	Silver	1 1	1 1		INR :
17440-23-5	Sodium	! !	1 1		INR I
17440-28-0	Thallium_	1	1 1		INR I
17440-62-2	Vanadium_	! !	1 .1		INR
17440-66-6	:Zinc		1 1		INR I
	Cyanide	}			INR :
1	· ·		1_1		_ ! ;

Color	Before:	Clarity	Before:	Texture:
Color	After:	Clarity	After:	Artifacts:
Commer	nts:			
	- ۱۰ ساسا می بیان شاه اساسا می باد. می می می می می بیان برای بیان می می می می می می می می می می بیان برای می م - ۱۱ می می می می می می می می می می می می می		ب برب بات سے بعد بات ان ان ان ان ان ان ان سے بعد بات بعد بات بات بات بات بات بات بات بات بات بات	

#### U.S. EPA - CLP

•	TNOPGANIC AN	1 NALYSIS DATA SHI		SAMPLE NO.
Lab Name: KEYSTONE B		Contract: 68	1	MHP517
Lab Code: KEYTX	Case No.: 1233	84 SAS No.:	SDG	No.: MHL955
Matrix (soil/water):	: WATER	Lá	ab Sample ID:	890773024
Level (low/med):	LOW	Da	ate Received:	07/21/89
% Solids:	0			

	!		<del></del>	 <del></del>
CAS No.	Analyte	Concentration		M
; !	}	,	1_;	 }
17429-90-5			1 1	INR
17440-36-0	Antimony_	i 1	1 :	INR
17440-38-2	Arsenic	<b>,</b>	1 1	INR
17440-39-3	Barium	<b>.</b>	`; ;	!NR
7440-41-7	Beryllium	•	: :	INR
17440-43-9	Cadmium	!	; ;	INR
7440-70-2	Calcium	; ;	: :	INR
7440-47-3	Chromium_		; ;	INR
17440-48-4	Cobalt	!	F 1	INR
7440-50-8	Copper	}	! !	! NR
17439-89-6			! !	INR
7439-92-1			;	INR
17439-95-4	Magnesium	}	! !	INR
17439-96-5	!Manganese!		; ;	INR
17439-97-6	!Mercury	0.20	: U:	ICV :
17439-02-0	Nickel	1	: :	INR :
7440-09-7	Potassium		; ;	INR :
7782-49-2	Selenium_	· ·	; ;	INR :
7440-22-4	Silver	•	: :	INR :
7440-23-5	Sodium	<b>!</b>	; ;	INR :
7440-28-0			: :	INR
7440-62-2			1 1	INR I
7440-66-6	Zinc		: :	INR
	Cyanide		; ;	INR I
	1		: :	! :

Color	Before:	Clarity E	Before:	Texture:
Color	After:	Clarity A	After:	Artifacts:
Commer	nts:			
			به مه مه بنه بند نه چه بند مه منه که که که که که که که که بند لاد. 	

#### Keystone DC# 12334-8-5

#### U.S. EPA - CLP

•			1 C ANALYSIS DA		EPA SAMPLE NO.
Lab Name:	KEYSTONE I	ENVIRONMENTAL	. Contract:	: 68-W8-0005	
Lab Code:	KEYTX	Case No.:	12334 SÁS 1	No.:	SDG No.: MHL955
Matrix (	soil/water):	: WATER		Lab Sample	ID: 890773025
Level (1	ow/med):	LOW		Date Recei	ived: 07/21/89

0

Concentration Units (ug/L or mg/kg dry weight): UG/L

% Solids:

:  CAS No. !	: : Analyte :	  Concentration 	; ; ;	; ; m	1
17429-90-5	[Aluminum_	`	-   -	 INR	1
	Antimony_		: :	INR	ł
	Arsenic		1 1	INR	{
	Barium		1 1	INR	1
	Beryllium		1 1	! NR	1
17440-43-9	Cadmium_		; ;	INR	ŀ
17440-70-2	Calcium	 		INR	;
17440-47-3	Chromium_	!	: :	INR	;
17440-48-4	Cobalt	<b>!</b>	1 1	INR	;
17440-50-8	Copper	}	1 1	INR	:
	Iron		; ;	INR	1
17439-92-1	!Lead		;	INR	;
17439-95-4	Magnesium	•	;	INR	i
17439-96-5	Manganese	<b>!</b>	1 1	! NR	1
17439-97-6	Mercury	0.20	:U:	ICV	;
17439-02-0	Nickel	!	: :	INR	1
17440-09-7	(Potassium	<b>;</b>	1 1	INR	1
17782-49-2	Selenium_	}	; ;	INR	;
17440-22-4	Silver		: :	INR	ł
17440-23-5	(Sodium		: :	INR	ł
17440-28-0	!Thallium_		1 1	INR	;
17440-62-2	:Vanadium_	}	1 1	INR	ł
17440-66-6	!Zinc		1 1	INR	;
!	Cyanide			INR	;
!	1	 	1_1_	 _	. ;

Color	Before:	Clarity Before:	Texture:
Color	After:	Clarity After:	Artifacts:
Commer			

#### Keystone DC# 12334-8-5

#### U.S. EPA - CLP

	1		
THORRANTO	ANAL VOTO	DATA	CHEET.

EPA SAMPLE NO.

MHP519

Lab Name: KEYSTONE ENVIRONMENTAL

Contract: 68-W8-0005

\_\_\_\_\_

Lab Code:

Case No.: 12334

SAS No.:

SDG No.: MHL955

Matrix (soil/water): WATER

KEYTX

Lab Sample ID: 890773026

Level (low/med):

LOW

Date Received: 07/21/89

% Solids:

O

Concentration Units (ug/L or mg/kg dry weight): UG/L

! !CAS No.	   Analyte	  Concentration		i i m	:
	.	!	1_1.	 _	_ !
17429-90-5	Aluminum_	<b>!</b>	: :	INR	1
17440-36-0	Antimony_	1 1	; ;	INR	1
17440-38-2	Arsenic		1 1	INR	i
17440-39-3	Barium			INR	;
:7440-41-7		;	; ;	INR	1
17440-43-9			; ;	INR	ļ
17440-70-2			: :	INR	;
17440-47-3				INR	:
17440-48-4	_		1	INR	;
17440-50-8			1 1	INR	1
17439-89-6			: :	INR	;
17439-92-1		<b>!</b>		INR	ł
17439-95-4		! 1	: :	INR	;
17439-96-5			1 1	INR	;
17439-97-6	_		:U:	:CV	;
17439-02-0			1 1	INR	;
17440-09-7			1 1	INR	;
17782-49-2				INR	į,
17440-22-4			: :	INR	;
17440-23-5				INR	1
17440-28-0				INR	:
17440-62-2	_			INR	i
	:Zinc			INR	i
	Cyanide	· 1		INR	,
;	icyanitue	; <b>!</b>	!!	!	í
'	'	'		 - '	<b>-</b> '

Color	Before:	Clarity Be	efore:	Texture:
Color	After:	Clarity Af	fter:	Artifacts:
Commer	ıts:			

#### REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW

\*\*\*guideline references are from Contract #787\*\*\*

Case No.: 12334 TDD No.: F08-8909-08

Site: Richardson Flats

Contractor Laboratory: Silver Valley Labs

Data Reviewer: Annette Sackman Date of Review: 10-3-89

Sample Matrix: 5 Low Soils, 15 Low Waters

Analysis: Metals plus Mercury

Sample Nos.: MHL955, MHL956, MHP500, MHP501, MHP502, MHP503, MHP504, MHP506, MHP507, MHP509, MHP510, MHP511, MHP512, MHP513, MHP514, MHP515, MHP516, MHP517, MHP518, MHP519

- ( ) Data are acceptable for use.
- (X) Data are acceptable for use with qualifications noted.
- ( ) Data are preliminary pending verification.
- ( ) Data are unacceptable.

Action required by DPO?

No X Yes The following items require action:

Action required by project officer?

No X Yes

#### The following are our findings:

These samples were originally sent to Keystone-Houston Labs for metal analysis; however, due to contractual problems, Keystone Houston only analyzed for mercury and then sent the samples to Silver Valley Labs for complete metal analysis. This package is the results for the analysis performed by Silver Valley Labs and includes metals plus mercury analysis. Since the samples were first sent to Keystone-Houston Labs, the holding times for the mercury analysis performed by Sliver Valley Labs was missed by seven days. Therefore, all mercury values in this package are flagged "J" and considered estimate.

The remaining data is acceptable for use with the following qualifications:

No final CRDL standard was run for the furnace AA analysis. The CRDL value for selenium was transposed on Form IIB and the correct %D is 78.6%; however, no qualifications are required for these discrepancies.

The spike recovery was below 40% for selenium values for water matrix (22.8%); therefore, all associated selenium values are unusable and rejected "R". The thallium spike recovery for soil matrix was low (54.3%); therefore all thallium soil values are flagged "J" and considered biased low.

Duplicate results for lead water values obtained by ICAP were high (37.0%RPD). Since sample MHP516 was the only water sample in which lead was analyzed by ICAP, this lead value is considered estimated and flagged "J".

All MSA criteria were followed except for the following: MSA was required for arsenic for sample MHP517 and thallium for sample MHP516; therefore these values are estimated and flagged "J". One correlation coefficient was <0.995 for the arsenic analysis for sample MHP518; therefore, this value is flagged "J", estimated. Both correlation coefficients were <0.995 for the arsenic analysis for sample MHP504; therefore this value is unusable and flagged "R", rejected.

Serial dilution results for arsenic and zinc soil values were slightly high, 12.1% and 13.3%, respectively. These soil values are therefore flagged "J", estimated.

The arsenic value for sample MHP516 was analyzed by furnace AA and reported as 46.5  $\mu$ g/l; however, this number was not multiplied by the dilution factor of 50. The correct arsenic value is actually 2326  $\mu$ g/l for this sample.

X ICP interelement correction factors-quarterly (Form II)

#### Contract Compliance

- I. Initial and Continuing Calibration Verification (ICV and CCV) (guidelines pg. E-4, Form IIA)
  - 1. Was instrument calibrated daily and each time it was set up?

    yes X no
  - 2. Were instruments calibrated using 1 blank and several standards? yes X no
  - 3. Were calibration verifications within 90-110%? yes X no
  - 4. Were continuing calibrations run at 10% frequency?

    yes X

    no
- 5. Were the raw data correctly transcribed onto Form IIA?

  yes X no

  Comments: All requirements met.
- II. CRDL Standards for ICP (CRI) and/or AA (CRA) (guidelines pg. E-6, Form IIB)
  - 1. For ICP analysis, were standards (CRI) @ 2x the CRDL or the IDL (whichever was greater) analyzed at the beginning and the end of each sample run, or at a minimum of twice/8 hour shift, whichever was more frequent?

yes X no

- 2. For furnace AA analysis, were standards (CRA) analyzed at the beginning and the end of each sample run, or at a minimum of twice/8 hour shift, whichever was more frequent?

  ves no X
- 3. Were the CRI and/or CRA standards analyzed after the ICV? yes X no
- 4. Were these data reported on Form IIB? yes X no
- 5. Were the raw data correctly transcribed onto Form IIB?

  yes no X

  Comments: The CRA was run only at the beginning of the sample runs and not at the end. The selenium CRDL value was transposed on Form IIB and the correct %D is 78.6%. No flags are required for these discrepancies.

#### Blanks (guidelines pg. E-6, Form III)

- Was the initial calibration blank (ICB) analyzed immediately after the initial calibration verification (ICV)? yes X no
- 2. Was a continuing calibration blank (CCB) analyzed immediately after each continuing calibration verification (CCV)? yes X
- Was a preparation blank (PB) analyzed at a frequency of at least 1 in 20 samples? yes X no NA
- How many elements were detected above the CRDLs? 0 (if 0, go to question 5)
  - How many elements were detected in the blanks at greater than one-half the amount detected in any sample?
- 5. Were raw data correctly transcribed onto Form III? yes X

Comments: All requirements met.

#### IV. ICP Interference Checks (ICS) (guidelines pg. E-7, Form IV)

- 1. Was the ICS analyzed twice per 8 hour shift? yes X
- Were the ICSs analyzed before and after samples? yes X
- Was any massive interference detected? no X yes
- Were the ICSs within ±20% mean value? yes X no
- Were raw data correctly transcribed onto Form IV? Comments: All requirements met.

V. Spike Sample Analysis (S) (guideline pg. E-8, Form V)

- 1. Were spikes analyzed at a frequency of 1 in 20 samples?

  yes X no
- Were spike recoveries correctly calculated? yes X no

$$% recovery = \frac{(SSR - SR)}{SA} \times 100$$

SSR = Spiked Sample Result

SR = Sample Result

SA = Spike Added

- 3. Were spike recoveries within the range of 75-125%? yes no X
  - 3a. For recoveries outside this range, were associated data flagged "N" by the laboratory on Forms I and V?

    yes X no NA
  - (an exception if granted where the sample concentration is >4X
     the spike concentration)
  - 4. Were raw data correctly transcribed onto Form V?

    yes X no
- \* Refer to page E-9 (SOW 787) for information regarding the amount of spike to be added for each analyte and for other information about the Spike Sample Analysis.

Comments: Selenium water values are unusable and flagged "R" due to spike recoveries below 40% (22.8%). Thallium soil values are estimated and flagged "J" due to low spike recoveries (54.3%).

VI. Duplicates (D) (guidelines pg. E-11, Form VI)

- 1. Were duplicates analyzed at a frequency of 1 in 20 samples? yes X no
- 2. Were RPDs correctly calculated?

yes X no

$$RPD = \frac{S - D}{(S + D)/2} \times 100$$

S = Sample

D = Duplicate

- 3a. For sample concentrations >5x the CRDL, were RPDs  $\pm 20\%$ ? (limits of  $\pm 35\%$  apply for soil/sediment/tailings samples) yes no X NA
- 3b. For sample concentrations >5x the CRDL, did duplicate analysis results fall outside the control window of ± the CRDL?

  yes no X NA
- 3c. Where the RPDs exceeded the control limits, were the data flagged '\*' on Forms I and VI by the laboratory?

  yes X no NA
- 4. Were raw data correctly transcribed onto Form VI?

  yes

  no X
- \* Other Considerations:
- Field blanks cannot be used for duplicate analyses
- Duplicates must be analyzed for each analytical method

Comments: The selenium values for water sample MHP503D was done on ICAP and was compared to the furnace AA value for MHP503 which gave an RPD of 200%. The ICAP value for MHP503 of 28.02 µg/l, which should have been used for comparison, gives a new RPD of 27.8%. Since no water samples were analyzed by ICAP no flags are assigned to selenium values. Duplicate results for arsenic and lead water samples were high when analyzed by ICAP (200% and 37.0%, respectively). No arsenic values were acquired by ICAP analysis but the lead value for sample MHP516 was analyzed by ICAP and is therefore estimated and flagged "J".

- VII. Laboratory Control Sample (LCS) Analysis (guideline pg. E-12, Form VII)
  - 1. Was an LCS analyzed for every sample delivery group or batch of samples, whichever was more frequent? yes X no
  - 2. Were recoveries within the 80-120% limit? yes X no

-if the recoveries were outside this range the analysis must be terminated, the problem corrected and the previous samples associated with that LCS redigested and reanalyzed.

3. Were the raw data correctly transcribed onto Form VII?

yes X no

Comments: All requirements met.

## VIII. Furnace Atomic Absorption (AA) QC Analysis (guidelines pg. E-14, Form VIII)

1. Does the raw data package contain absorbance values for two injections per sample, the average values and the relative standard deviation (RSD)?

yes X no

 For analyte concentrations > the CRDL, did the RSD for the duplicate injections agree within 20%? (if yes, go to question 3)

yes X no

 $RSD = \frac{SD}{M} \times 100$ 

SD = Standard Deviation of Duplicate Injections

M = Mean of Duplicate Injections

2a. Were samples that exceeded the 20% criteria reanalyzed?

yes

no

2b. Did any reanalyzed samples exceed the 20% criteria? yes no

2c. If yes, did the laboratory flag the data of Form I with an 'M'?

yes no

Was the recovery of the spike > 40%? (if yes, go to question 4).

yes no X

If no, was the sample diluted and rerun with another spike? yes X no

4. Was sample absorbance >50% of spike absorbance?\* (if yes, go to question 5).

yes no X

\* Spike absorbance = absorbance of spiked sample - absorbance of sample.

4a. For spike recoveries between 85 and 115%, were results reported to the IDL?

yes X no

 $RPD = \frac{(SSR - SR)}{SA} \times 100$ 

SSR = Spike Sample Recovery

SR = Sample Result
SA = Spike Added

- 4b. For spike recoveries outside the 85 and 115% range, were results reported to the IDL and flagged with 'W'? yes  $\overline{X}$  no
- 5. Was spike recovery between 85 and 115%? (if no, go to question 6)
  - 5a. Were results quantified from calibration curve and reported to IDL?

yes X no

6. Was an MSA at 50, 100 and 150% of the sample absorbance analyzed?

yes no X

- 6a. Was each MSA analysis identified in the raw data along with the slope, intercept and correlation coefficient? yes X no
- 6b. Were these data correctly transcribed onto Form VIII?

  yes no
- 6d. If no, were MSAs run once more?

  yes X no
- If the correlation coefficients were still > 0.995, data on Form I must be from the run with the best 'r' and the data on Forms I and VII must be flagged with a '+'.

Were these criteria met?

yes X no

6e. Were all MSA obtained data marked with an 'S' or an S+ on form I?

yes X no

Comments: MSA was required but not performed for sample MHP516's thallium value or for sample MHP517's arsenic value. These values are estimated and flagged "J". One correlation coefficient was <0.995 for sample MHP518's arsenic value and is flagged "J", estimated. Both correlation coefficients were <0.995 for sample MHP504's arsenic value and is considered unusable and flagged "R", rejected.

- IX. ICP Serial Dilution (L) Analysis (guidelines pg. E-12, Form IX)
  - 1. Was an ICP serial dilution performed on each group of samples of a similar matrix (i.e., soil, water) and concentration (i.e., low, high) or for each sample delivery group, whichever was more frequent?

yes X no

2. For elements with concentrations >10% the CRDL, did any exceed the serial dilution results by more than 10%? (if no, skip questions 3 and 4)

yes X no

% difference =  $\frac{I - S}{I}$  X 100

I = Initial Sample Result

S = Serial Dilution Result (instrument reading X5)

- 3. Which elements had concentrations that exceeded the 10% criteria? For soils, arsenic and zinc.
- 4. Did the laboratory flag these data with an 'E' on Form IX?

  yes X no
- 5. Were the raw data correctly transcribed onto Form IX?

  yes X no

Comments: For the soil samples, the arsenic and zinc values are flagged "J", estimated due to slightly high %D's of 12.1 and 13.3%, respectively.

#### X. Instrument Detection Limits (IDL) (guidelines pg. E-13, Form XI)

- 1. Were IDLs reported for each analyzed element?

  yes X no
- 2. Were IDLs reported for each instrument used?

  yes X no
- 3. Did the IDLs meet the contract requirements? (refer to pg. E-13, SOW 787)

yes X no

Comments: All requirements met.

#### XI. Interelement Corrections for ICP (guidelines pg. E-13, Form XII)

1. Were correction factors reported on Form XII?

yes X no

Comments: All requirements met.

#### XII. Linear Range Analysis (LRA) (guidelines pg. E-14, Form XII)

- Was a linear range verification standard analyzed? yes X no
- 2. Was the results within  $\pm 5\%$  of the true value? yes no

#### Holding Times

Limits: Metals - 6 months; Hg - 30 days; Cn - 28 days.

- 1. Verified date of sample receipt by laboratory 8-16-89
- 2. Date of preparation/analyses 8-25-89
- 3. Were holding times met? yes no X

Mercury holding times were not met; therefore, all mercury values are estimated low and flagged "J".

Analyte	Matrix	Date Sampled	Prep Date	Holding Time	Holding Time Limit/Met
Mercury Mercury Metals Metals	Low soil Low water Low soil Low water	7-18-89 7-18-89	8-25-89 8-25-89 8-25-89 8-25-89	37 days 37 days 37 days 37 days	30 days no 30 days no 6 months yes 6 months yes

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS., INC.

Contract: 6

Lab Code: SILVER Case No.: 12334

SAS No. :413 49

SDG No.: MHL955

Matrix (soil/water): SOIL

Lab Sample ID:

tevel (low/med): LOW

Date Received: 08/16/89

% Solids:

98.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.   Analyte   Concentration   C   Q   M	
7440-36-0   Antimony   63.1   1	
7440-36-0   Antimony           63.1	
7440-38-2  Arsenic	
17440-41-7   Beryllium	
17440-43-9 (Cadmium   21.1	
17440-70-2   Calcium   37000     1P	
17440-47-3   Chromium   2.0   8  1P	
17440-48-4 (Cobalt   5.5   B    1P	
:7440-50-8 :Copper : 149 : : :P :	
17439-89-6   Iron   44700   1   1P	
17439-92-1   Lead	
17439-95-4   Magnesium   11200	
	cu
17439-97-6   Mandadese   1440   1781CY   A-12	5 /
17440-02-0   Nickei   8.2   1   1P	
17440-09-7  Potassium  255  B     P	
:7782-49-2  Selenium   23.6	
17440-22-4   Silver   12.6   1* 18	
:7440-23-5   Sodium   22.4   81   1P	
17440-28-0   Thallium   6.6   INS   IF   1 水	3
(7440-62-2 (Vanadium   1.3 (8) 1P (	
:7440-66-6   Zinc   3220    E     IP	
Cyanide   INR	

olor Before: BROWN

Clarity Before:

Texture: MEDIUM

olor After: YELLOW

Clarity After:

Artifacts:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

68-W8-0074

Lab Name: SILVER VALLEY LABS., INC.

Contract: 68-09-0071

Lab Code: SILVER Case No.: 12334

SDG No.: MHL955

matrix (soil/water): SOIL

Lab Sample ID:

Level (low/med): LOW

Date Received: 08/16/89

% Solics:

98.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	:   Analyte	Concentration	C	Q	7 : M	! !
7429-90-5	: :Aluminum	1040	-    -    -	 *	; P	; }
17440-36-0	Antimony	84.4	ا _ ا		<u>: P_</u>	!
17440-38-2	Arsenic	208	! _ !		<u>: P</u>	1748
17440-39-3	Barium	86.9	1 _ 1	*	12	} 
17440-41-7	Beryllium		<u>: U</u> :		16	1
17440-43-9	Cadmium	41.2	: _ ]		18	}
7440-70-2	Calcium	54500	:		<u>: P</u>	1
17440-47-3	Chromium	6.0	1		<u>: P</u>	!
17440-48-4	Cobalt	2.6	B		; P	1
17440-50-8	Copper	205	_ ]		; P	1
17439-89-6	Iron	36500	_ ]		<u>; P</u>	;
17439-92-1	Lead	3060	: _ <u> </u>		; P	1
17439-95-4	:Magnesium	18500	( ]		; P	1
17439-96-5	Manganese	1740	: _ :		10	1
17439-97-6	Mercury	1,4 1.4	: ]	N J 45	TCV	DC 94289
17440-02-0	Nickel	9.4	! 📑		<u> </u>	!
17440-09-7	: Potassium	496	: B		; P	1
17782-49-2	Selenium		!		IF	<u>}</u>
17440-22-4	Silver	18.5	: -	*	; P	!
17440-23-5	Sodium	34.8	B		īP	<u> </u>
17440-28-0	Thallium.		;		:F	SKT:
17440-62-2	:Vanadium	3.8			TP-	;
_ ========	Zinc	5710	:	E	1P	2 1
	Cyanide	 	!		INR	1
;	1		;		;	1

Color Before: BROWN

Clarity Before:

Texture: MEDIUM

Color After: YELLOW

Clarity After:

Artifacts:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS., INC. Contract: 68-89-6071

Lab Code: SILVER Case No.: 12334 SAS No.: 4178 SDG No.: MHL955

Matrix (soil/water): SOIL

Lab Sample ID:

Level (low/med): LOW -

Date Received: 08/16/89

% Solids:

99.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	i ! Analyta	:    Concentration		<b></b>	; M	1
	! !	!	;	CX	1	•
7429-90-5	Aluminum	1530	1	*	P	1
17440-36-0	Antimony	87.0	: <u> </u>		; P	;
17440-38-2	Arsenic		1 _ 1		; P	1 1 18
17440-39-3	Barium	32.8	<u> B:</u>	*	<u> ; p</u>	<u>}</u>
7440-41-7	Beryllium.	10.22	<u>: U :</u>		<u>:P</u>	1 1
17440-43-9	Cadmium	95.9	:1		<u>; P</u> _	į
17440-70-2	Calcium	68200	! <u> !</u>		18	l .
: <u>7440-47-3</u>	Chromium_	8.3	1_1		<u> </u>	:
17440-48-4	Cobalt		: <u>B:</u>		<u>:P</u> _	;
17440-50-8_	:Copper	336_	-1		; p	<b>2</b> ●
: <u>7439-89-6</u>	:Iron	53400	<u>ا</u> ا		<u> </u>	t 5
: <u>7439-92-1</u>	Lead	4520	١		<u> </u>	i
: <u>7439-95-4</u>	: <u>Magnesium</u> :	23000	:		<u>:P</u>	1
1 <u>7439-96-5</u>	' <u>Manganese</u>	2320	1_4		<u> </u>	1
1 <u>7439-97-6</u>	:Mercury	1.1		N 145	7CA	91289
: <u>7440-02-0</u>	Nickel	7.1	<u> B</u>		<u>.12</u>	1 7.
1 <u>7440-09-7</u>	: <u>Potassium</u> :	1827_	B		LP_	;
17782-49-2	Selenium_	19.2	-1		ĿΕ_	:
17440-22-4	Silver	22.1_	:	<u>*</u>	12	l
17440:23:5_	Sodium	42.6	BT		<u> </u>	
1 <u>7440-28-0</u>	' <u>Thallium</u>	4.2			. <u>LE</u> _	丁刈
7440-62-2	<u>Yanadium</u> _	3.7			<u> </u>	
17440-66-6	: <u>Zinc</u>	14100		E	; P	
	Cyanide				<u>INR</u>	
i	· ·		- !			í

olor Before: BROWN

Clarity Before:

Texture: MEDIUM

plor After: YELLOW

Clarity After:

Artifacts:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS., INC.

68-W8-0074 Contract: de de de de/1

Lab Code: SILVER Case No.: 12334

SAS NO.: 64347

SDG No.: MHL955

Matrix (soil/water): SOIL

Lab Sample ID:

Level (low/med): LOW

Date Received: 08/16/89

% Solids:

81.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

· · · · · · · · · · · · · · · · · · ·				·		
<b>!</b>			;		1 1	
ICAS No.	Analyte	Concentration	C	Q	: M :	
1			_			
17429-90-5	<u>Aluminum</u>	1030	1_1	<u>*</u>	<u> </u>	
17440-36-0	Antimony	120	1		<u> </u>	
17440-38-2	:Arsenic	259	: _ :		<u> </u>	I AS
17440-39-3	Barium	117	; ;	*	<u> </u>	
17440-41-7	Beryllium	0.27	: <u>U</u> :		P	
17440-43-9	Cadmium	117	1		; P	
17440-70-2	Calcium	5400	1		; p	
17440-47-3	Chromium	0.69	: U :		; P	
17440-48-4	Cobalt	3.9	B		; P	}
	Copper	28:	:		; P	
	Iron	97400			- ; P	
17439-92-1	Lead	9300			; P	
17439-95-4	Magnesium		8		; ;	
	Manganese		:		; P	
	Mercury	4.3 1.7	;	NI	19 CV	DC-289
	Nickel		8		; ዖ	<b>,                                    </b>
	Potassium	1140	8		ا ج	}
	Selenium	45.7	;		;F	;
	Silver	62.8	: -:	*	- ; p :	
	Sodium		BI		. ; P ;	
	Thallium	9.7			; F	BATE
17440-62-2	Vanadium	2.6	B:		IP:	
	Zinc	16200	:	E	; P	
	Cyanide		; -;		INR	
!			-			
			_ `			

Color Before: BROWN

Clarity Before:

Texture: FINE

Color After:

YELLOW

Clarity After:

Artifacts:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS..INC. Contract: 6

Lab Code: SILVER Case No.: 12334 SAS No.: 4434

SDG No.: MHL955

Matrix (soil/water): SOIL

Lab Sample ID:

tevel (low/med): LOW

Date Received: 08/16/89

% Solios:

95.0

Concentration Units (uq/L or mg/kg dry weight): MG/KG

			i 			
CAS No.	: Analyte	Concentration		l Q	IM I	
	·		<u> </u>	i	-!!	
17429-90-5		240		*	_ <u>:P</u> _:	
: <u>7440-36-0</u> _	Antimony_	144	·		<u>_;P_</u> ;	
17440-38-2	Arsenic	175_	٠	: 	<u> </u>	J AS
<u> 7440-39-3</u>	Barium		B		_12_1	
17440-41-7	Beryllium	0.23	IJ.	! !	_ <u></u> ;	
1 <u>7440-43-9</u>	:Cadmium:	250_	ļ 	<u> </u>	_ <u></u> :	
17440-70-2	Calcium	32800	·		<u>iP</u> ;	
17440-47-3	Chromium	0.59	l Ü		_ ; p _ ;	
	Cobalt	3.2	B	!	1 12	
17440-50-8	Copper	265	:	:	TP :	
	Iron	87000	¦		iP:	
	Lead	31600		<u> </u>	.P	
17439-95-4	Magnesium	142	B		_;P_;	
17439-96-5	Manganese			1	TP:	
	Mercury	4240		N IA	SICY	00 14 19
17440-02-0	Nickel	6.2	B		P;	7 '
17440-09-7	Potassium:	680	B		:P:	
17782-49-2	Selenium	38.4			IF_	
17440-22-4	Silver	115		<b>.</b> ★	;	
	Sodium :	117	8	 	P	
17440-28-0	Thallium	6.8	8	l N	- F	EXI
17440-62-2	Vanadium	0.57	Ū		TP:	
17440-66-6	Zine	33800		E	TP:	
	Cyanide			<del></del>	INE	
		· · · · · · · · · · · · · · · · · · ·				
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~						

Color Sefore: BROWN

Clarity Before:

Texture: MEDIUM

Color After: YELLOW

Clarity After:

Artifacts:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Contract: 69-09-0071

Lab Name: SILVER VALLEY LABS., INC.

Lab Code: SILVER Case No.: 12334

SAS No.:

SDG No.: MHL955

Matrix (soil/water): WATER

Lab Sample ID:

Level (low/med):

LOW

Date Received: 08/16/89

% Solias:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	: Analyte	  Concentration	C	a		: 
17429-90-5	Aluminum	26.6	B:		12	! !
17440-36-0	Antimony	19.9	<u>ا ي ا</u>		112	! }
17440-38-2	Arsenic	3.3	BL	NM	<u> </u>	
17440-39-3	Barium	51.5	1 <u>B 1</u>		12_	;
17440-41-7	:Beryllium	11_1_	Ι <u>UΙ</u>		<u> </u>	! !
17440-43-9	:Cadmium	: <u>2.0</u> _	BT.		<u> </u>	ŀ
17440-70-2	: <u>Calcium</u>	147000	1_1		<u>: P_</u>	1
17440-47-3	:Chromium_	<u>2.8</u> _	I ULL		LP_	! !
1 <u>7440-48-4</u>	: <u>Cobalt</u>		<u> </u>		<u> </u>	i
17440-50-8	Copper		BT		<u>: P</u> _	} 
1 <u>7439-89-6</u>	: Iron		<del> </del>		<u> </u>	:
: <u>7439-92-1</u>	! <u>Lead</u>	·5.9	B	<u>N*</u>	<u>:F</u>	
17439-95-4	: <u>Magnesium</u>		1_1		<u> </u>	
17439-96-5	: <u>Manganese</u>		1_1	<u></u>	<u>.P</u> _	L C 64
17439-97-6	Mercury	0.2 20	: <u>n u</u>	Z87 ~	7.C⊼	1 9-11-87
: <u>7440-02-0</u>	Nickel		: <u>U :</u>		<u>: P_</u>	;
; <u>Z440-09-7</u>	<u>Potassium</u>		BI		<u> </u>	! 
17782-49-2	:Selenium_	1.4	: <u>UT</u>	<u>N</u> *	<u>l</u> E_	: X XD
17440-22-4	:Silver		! <u>U T</u>		<u>:                                    </u>	;
17440-23-5	:Sodium	:25200_	1_1.		<u>: P</u> _	1
1 <u>7440-28-0</u>	: Thallium_	1.0			<u>:E</u> _	! !
12440-62-2	: <u>Nanadium</u>	12.7_			<u> </u>	1
<u> 7440-66-6</u>	Zinc	419_	l _ <u>+</u> .		<u> </u>	1
!	Cyanide	! ! 	· _ i.		LNR	1
!	·	: } 	<b>!</b> _ <b>!</b> .		1	1

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS., INC. Contract: 68

tab Code: SILVER Case No.: 12334 SAS No.: 4134 SDG No.: MHL955

Matrix (soil/water): WATER

Lab Sample ID:

cavel (low/med): LOW

Date Received: 08/16/89

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

					<del></del>	1
CAS No.	i ! Amplytm	Concentration	i Geografia	, : Q	: M	<b>!</b> ;
iono no.	!	i !	 !	! GK	!	
7429-90-5	' Aluminum	75.8	: <u>-</u>	' !	; ;=-	• !
	:Antimony		: <u>=</u>		<u>;                                    </u>	
	Arsenic	. 1== .:-			iF-	SK S
	: DLBEULL : Barium		'≅. ¦8			
			; <u></u> .		; p	1
	Beryllium			·		! !
17440-43-9	Cadmium	147000	'프-		<u> </u>	F 3
	Calcium	147000	i 		<u> </u>	i *
	Chromium_				::=-	i
17440-48-4	Cobalt		Œ.		LP_	<b>i</b>
	(Cobber	<u>5.6</u> _	트.		15-	i ,
7439-89-6	Iron	481			<u> </u>	<b>.</b>
7439-92-1	Lead	<u>35.8</u>	; 		IE-	;
	Magnesium	36200			<u>LP</u>	;
<u>7439-96-5</u> _	: <u>Manganese</u>		¦		12	
12439=97=6_	Mercury	0.a_%				1 AC 189
	Nickel	: <u>9.7</u> _	IJ.		<u> </u>	; 971
12440-09-2	<u>Potassium</u>	<u>1920</u> _	₽.		<u> </u>	1
17782-49-2	<u>Selenium</u>	14.0	ı U	<u>  N*</u>	iE_	RAS
17440-22-4	Silver	1.6		<u>;</u>	<u> </u>	:
17440-23-5	Sodium	24100		<u></u>	12_	i i
1 <u>7440-28-0</u>	Thallium_	1.0	<u>. U</u>	<u>. M</u>	LE_	i
17440-62-2	<u>Vanadium</u> _	<u> </u>	Ų,	: 	<u>:2_</u>	!
17440-66-6	Zinc	<u>519</u> _		<u></u>	<u> </u>	i i
1	Cyanide			<u> </u>	INR	1 1
				·	!	1 1

·lor Before: COLORLESS

Clarity Before: CLEAR

Texture:

dor After: COLORLESS

Clarity After: CLEAR Artifacts:

mments:

EPA SAMPLE NU.

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS., INC.

Lab Code: SILVER Case No.: 12334

SAS No.: 447/8

SDG No.: MHL955

Matrix (soil/water): WATER

Lab Sample ID:

Level (low/med): LOW

Date Received: 08/16/89

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

			<del>,</del> -			1
CAS No.	:   Analyte	:  Concentration		a	i I M	; !
; ; <u>7429-90-5</u> ;	: :Aluminum	370	· _ · _		: : = -	í 1
:7440-36-0	Antimony_	19.9	UL_		<u>: P</u>	<b>¦</b>
17440-38-2	Arsenic :	12.2	11	<u> 15</u>	: F_	!
:7440-39-3	Barium	59.1	BI		; P_	! !
	Beryllium	1.1	IUT.		; P	;
	Cadmium	1.8	IŪĪ		; P	;
	Calcium	144000			; P	i 1
17440-47-3	Chromium	2.8	BI		; P	<u>;</u>
	Cobalt		Ü		; P	}
	Copper	11.7	BI		P	!
	Iron	1200			P	}
	Lead	122	IIN	<del>  *</del>	F	1
	Magnesium	35600			; P	<b>!</b>
	Manganese				P	1 - 4
	Mercury		NA			DC-1189
:7440-02-0_	Nickel	9.7	UL_		<u>: P</u> _	<b>!</b>
1 <u>7440-09-7</u>	Potassium	1980	81		<u> </u>	1
17782-49-2	Selenium_	1.4	<u>UIN</u>	<u>*</u>	E_	1 R **
17440-22-4	Silver	1.6	IUL_	,	<u> </u>	1
17440-23-5	Sodium	23400	1_1_		12_	<u> </u>
17440-28-0	Thallium	1.0	ULL	<u> </u>	E_	1
17440-62-2	<u> Vanadium                                    </u>	2.7.	<u>u.</u>	. — — —	<u> </u>	1
: <u>7440-66-6</u>	Zinc	726_			<u> </u>	: !
!	Cyanide		-1-		<u>: NR</u>	;
	! ! !		- <b></b>		<b>!</b>	;

olor Before: COLORLESS

Clarity Before: CLEAR

olor After: COLORLESS

Clarity After: CLEAR

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

tab Name: SILVER VALLEY LABS..INC.

Contract:

MHP509

Lab Code: SILVER

Case No.: 12334

SAS No.:

SDG No.: MHL95

Matrix (soil/water): WATER

Lab Sample ID:

Level (low/med):

LOW

Date Received: 08/16/89

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

icas No.	   Analyte	  Concentration  		(3 ; t	; ; !	
7429-90-5	Aluminum	11.5		' _   F	5 - ¦	
	Antimony	19.9	ΙŪΪ	1 9	5 ;	
7440-38-2	Arsenic	2.3	UIN	W ; F	= ;	
17440-39-3	Barium	14.9	BI	; 8	<u>5</u> ;	
17440-41-7	Beryllium	1.1	UI_	1.8	2	
17440-43-9	Cadmium	1.8	וען_	; F	<b>3</b>	
17440-70-2	Calcium	322000		1 F	<u> </u>	
: 7440-47-3	Chromium	2.8	<u>: U.L.</u>		2	
7440-48-4	:Cobalt	2.6	: UL		2_ ;	
17440-50-8	Copper	11.9_	<u>  81</u>		2_;	
17439-89-6	: Iron	270	-1_	: f	⊒_;	
17439-92-1	:Lead	0.90	ו הדה	W*	Ξ_;	
7439-95-4	Magnesium	68700	1		2_;	
17439-96-5	<u>Manganese</u>	94.8	!	18		9 c 00
1 <u>7439-97-6</u>	Mercury	0.2 20	IUIN		<u> </u>	9-11-89
: <u>7440-02-0</u>	Nickel	9.7	: U.	<u></u>	<u> </u>	'
1 <u>7440-09-7</u>	: <u>Potassium</u>	1480_	<u>B</u>	<u>.</u>		
1 <u>7782-49-2</u>	:Selenium	14.0	: UTM	*	Ξ_;	RXB
17440-22-4	Silver	1.6	: <u>U1</u>			
17440-23-5	:Sodium	47500	: _!_			
1 <u>7440-28-0</u>	' <u>Thallium</u>	<u>1.0</u> _	: UTM			
1 <u>Z440-62-2</u>	<u> Yanadium_</u>	32.7_	: uT_	18		
1 <u>Z440-66-6</u>	: <u>Zinc</u>	190_		;	2_ :	
!	Cyanide		1		1 <u>R</u> :	
!			<u>-</u>	!	;	

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After:

COLORLESS

Clarity After: CLEAR

Artifacts:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS., INC. Contract: 68-09-9071:

Lab Code: SILVER Case No.: 12334 SAS No.: 65 /64 SDG No.: MHL955

Matrix (soil/water): WATER

Lab Sample ID:

Lavei (low/med): LOW

Date Received: 08/16/89

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

	!		!!	· :	ı
ICAS No.	! Amalvita	Concentration	ici o	im	1
1000 1401	i milatyoa .	i i	!!	1 1 1	ı ı
7429-90-5	'Alumanaum	368	' '	-¦	<b>.</b> T
			' <del></del>		! :
	<u>  Autimony                                    </u>	: <u>19.9</u> _		- <u>; </u> ;	1
17440-38-2	Arseorc		<u>BINW</u>	- <u>:E</u> -	i :
	Barium	37.0		<u> </u>	
7440-41-7	Beryllium.			<u> </u>	
<u>Z440:43:9</u> _	Cadmium	12.5_	! <u>B                                   </u>	<u> </u>	
: <u>7440-70-2</u>	<u> Calcium</u>	333000	! _ <u> </u>	<u> </u>	·
17440-47-3	Chromium_	:2 <u>.</u>	۱ <u>۱۱</u>		•
17440-48-4	Cobalt	13.8_	B <u>:</u>	<u> </u>	
17440-50-8	Copper	12.9	BI	<u> </u>	}
17439-89-6	Iron	1070	1 _ 1	; P	1
7439-92-1	:Lead	131		;F	1
17439-95-4	Magnesium	70500	1_1	LP :	
17439-96-5	<u>Manganese</u>	2110	<u> </u>	18_	ac .89
<u>7439-97-6</u>	Mercury	0.2 3.4	K T Will !	SICY	9-11
17440-02-0	Nickel :	9.7	: <u>                                    </u>	12.	
17440-09-7	Potassium	1710	BI	<u>:P</u> :	
17782-49-2	Selenium	1.4	UIN*	JE :	L#3
17440-22-4	Silver	<u> </u>	B:	_ <u></u>	;
17440-23-5	Socium	48400		<u> </u>	
17440-28-0	Thallium	1.0	: U : W	IF.	
17440-62-2	Vanadium_	2.7	: U I	;P;	
17440-66-6	Zinc	656	1_1	:P_;	
1	Cyanide :			INR	
				_	
	<del></del>				

Color Before: CDLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

42

EPA SAMPLE NO.

I INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS., INC.

Contract: 68-89-0074

MHP511

Lao Code: SILVER

Case No.: 12334

SAS No.:

6-1789

SDG No.: MHL955

Matrix (soil/water): WATER

Lab Sample ID:

Level (low/med):

LOW

Date Received: 08/16/89

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

				·		
1	•	1	; ;	•	:	1
ICAS No.	: Analyte :	Concentration	IC:	a	: M	;
!	·		!!		:	:
17429-90-5	Aluminum	16.8	<u>B</u>		LP_	!
17440-36-0	Antimony :	19.9	<u>: U:</u>		18_	:
; <u>7440-38-2</u>	Arsenic	5.3	81	NW	:F	;
17440-39-3	Barium		B		P	;
17440-41-7	Beryllium	1.1	IŪ;		; P	1
17440-43-9	Cadmium	1.8	: Ūï		I P	1
. =	Calcium	320000	; 7		IP.	!
17440-47-3	Chromium	2.8	ιŪΤ		TP-	1
17440-48-4	:Cobalt	2.6	: 07		P	1
	Copper		: 0 :		TP-	1
17439-89-6	:Iron	224	; ;		; P	1
7439-92-1	Lead	0.90	: <u>U</u> :	N*	F	1
17439-95-4	Magnesium	68600	1 _ 1		TP_	1
	: Manganese		;		TP_	1
	Mercury	0.2	: 0 ;	NJS		: De-11-89
	Nickel		IŪĪ		; P	1
	Potassium	1330	BI		i P	;
17782-49-2	Selenium		IÜÏ	N*	iF	:RA3
17440-22-4	Silver	1.6	: 0 :		; P	1
17440-23-5	Sodium	46700			; P	<u> </u>
17440-28-0	Thallium	1.0	ıūī	lui	IF.	1
17440-62-2	Vanadium	2.7	١ŪΤ		; P	1
17440-66-6	Zinc	295	:		IP-	!
	Cyanide		; _ ;		INR	1
!	!		: -:		:	1

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After:

COLORLESS

Clarity After: CLEAR

Artifacts:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS., INC. Contract:

Lab Code: SILVER Case No.: 12334 SAS No.:

₽ GA3 18 SDG No.: MHL955

Matrix (soil/water): WATER

Lab Sample ID:

Level (low/med): LOW

Date Received: 08/16/89

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

	· · · · · · · · · · · · · · · · · · ·				<del></del>	
: :CAS No.	i I Amana I., ahan	:  Concentration	i Lore	; : 0	i : M	i 1
'CHO NO.	. WHETACE	.concentration	سا ا ا	r ter	1 11	<b>:</b> :
1 77 4 50 50 50 50 50	l N 1 com discourse	·	<u> </u>	'	<u> </u>	i
	<u>Aluminum</u>	106		~~	<u> </u>	i
	Antimony_	19.9			<u> </u>	;
	Arsenic	18.4_			<u>:E</u> _	i
12440-39-31	Barium	133.5_	; ₽.	<u> </u>	<u>: P</u> _	1
Z44Q=41=Z_	Beryllium		١ <u>Ų</u>	<u> </u>	<u> </u>	l 1
: <u>7440-43-9</u>	Cadmium	<u>1.9</u> _	١ <u>Ц</u>	<u> </u>	<u>LP</u>	t 1
<u>7440-70-2</u>	Calcium	303000	١	<u> </u>	<u>: P</u> _	
17440-47-3	Chromium_	2.8	١ <u>Ų</u>	<u> </u>	<u>: P</u> _	•
17440-48-4	Cobalt	2.6	١ <u>U</u>	<u>!</u>	<u>: P_</u>	1 1
17440-50-8	Copper	4.9	B	<u> </u>	; P	t ;
17439-89-6	Iron	1090	;	;	; P	;
17439-92-1	Lead	36.6	:	NS*	IF_	1 1
17439-95-4	Magnesium	64900	!		<u> 12</u>	!
17439-96-5	Manganese	950	!	!	<u> </u>	ac ca
17439-97-6	Mercury_	0.2 20	ĽЦ	ダバグ	TCA	P4-11-89
1 <u>7440-02-0</u>	Nickel	9.7	<u>ي</u> :		12_	·
17440-09-7	Potassium	986	18	1	<u>; P_</u>	l . I
:7782-49-2	Selenium_	14.0	<u>يا</u> :	!N*	iF_	RAB
17440-22-4	Silver	1.6	<u>ب</u> ا:	<u> </u>	<u>: P</u>	:
17440-23-5	Sodium	44300	: 	<u> </u>	<u>: 12</u>	•
17440-28-0	Thallium	1.0	ָט ו	; W	<u>: F</u> _	:
17440-62-2	Vanagium_	2.7	: ⊔	L	<u>: P</u> _	i E
17440-66-6	Zinc	332	;	1	<u>: 2_</u>	ļ
1	Cyanide		1		INR	!
1			!		!	) )
				-		

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

olor After: COLORLESS

Clarity After: CLEAR

Artifacts:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Contract: 68 83-0071

Lab Name: SILVER VALLEY LABS., INC.

SAS No.:

Matrix (soil/water): WATER

Lab Sample ID:

Level (low/med):

LOW

Lab Codé: SILVER Case No.: 12334

Date Received: 08/16/89

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

		· · · · · · · · · · · · · · · · · · ·			
i Losa os Nos	i 	i 100	i i	i 	i ,
CAS No.	Analyte    -	Concentration	(C) Q	ŀΜ	í
			!_!	-!=-	í -
	<u>Aluminum</u>	23.3			•
	Antimony_	19.9	: <u>Ul</u> .		•
: <u>7440-38-2</u>	Graenic	12.3_	: UID	LIE_	į
1 <u>7440-39-3</u>	Barium	·1_3_	<u>الا:                                   </u>	<u> </u>	,
7440-41-7	Beryllium	·1.1	: <u>U:</u>	<u>: P</u> _	:
17440-43-9	Cadmium	1.8	<u> </u>	<u>: P</u>	• •
17440-70-2	:Calcium	154	: <u>B                                   </u>	<u>: P</u>	) 
17440-47-3	Chromium .	3.5	B	18	ļ
17440-48-4	Cobalt	12.6	: U :	; P	;
17440-50-8	Copper	1.1	:U] .	; P	; !
:7439-89-6	:Iron	277		; P	!
17439-92-1	!Lead	0.90	U N*	iF	! !
17439-95-4	:Magnesium	42.5	BI	12	<b>!</b>
17439-96-5	Manganese	2.3	181	I P	1 95 00
	Mercury		UINJA	RICV	89-11-89
17440-02-0	Nickel		i U I	12	;
17440-09-7	Potassium	273	:UI	: P	1
17782-49-2	Selenium	1.4	:U:N*	; F	: l 43
17440-22-4	Silver	1.6	IUI	1 12	? <b>?</b>
17440-23-5	Sodium	68.9	B	10	r I
17440-28-0	Thallium	1.0	: U	T.F	! !
17440-62-2	Vanadium	2.7	:UI	; P	5 3
17440-66-6	Zinc	4.5		-; P	; i
!	Cvanide		; - <del></del>	INR	}
;	!		! !		

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS., INC. Contract:

Lao Code: SILVER Case No.: 12334 SAS No.:

SDG No.: MHL955

Matrix (soil/water): WATER

Lab Sample ID:

Level (low/med): LOW

Date Received: 08/16/89

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	   Analyte 	Concentration		M	; ; ;
7429-90-5	Aluminum	16.6	: B :	- ; <del></del> -	! !
17440-36-0	Antimony	19.9		75	 
17440-38-2	Arsenic		INS	:E:	! }
17440-39-3	Barium	1.3	<u> </u>	<u>:2</u>	1
17440-41-7	Beryllium	1.1	<u> </u>	<u> </u>	l •
7440-43-9	Cadmium_	1.8	: UL	<u> </u>	  -
7440-70-2	Calcium	<u> </u>	: <u>B!</u>	<u> </u>	ì
17440-47-3	Chromium		;	<u> </u>	i
7440-48-4	Cobalt		<u> ا ا ا ا ا ا</u>	<u>: P</u> _ :	j
	Copper		<u>8                                   </u>	<u>-‡</u>	; i
17439-89-6	<u>Iron</u>	219		- <u></u>	<u>,</u>
7439-92-1	Lead		: <u>                                    </u>	<u>-‡E</u> _ }	
	Magnesium		. #T	<u> </u>	i • * •
7439-96-5	Manganese		BL	<u> </u>	DC11-89
	Mercury		TAN TAN		, • 4 - 11
	Nickel		! !! <b>!.</b>	<u>-                                    </u>	í ≢
	<u> Potassium</u>		<u>  U                                   </u>	- <u>; P</u> -	R 48
	Selenium		! U	- <u>  -</u>	, ~ ~
	:Silver	1.6	, 일 , ! B !		i I
+ <u>744954359</u> + <b>7440</b> -28-0	:Sodium	76.0 1.0		- <u></u> -	! !
17440-62-2	Thallium	,			! !
	' <u>Vanadium</u> 'Zinc	1.3		- <u></u>	1
1 7 7 7 7 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Cyanide		' <del></del>	NR	' 
!	. = Tanaa=== .		·		<u> </u>
'	·				

plor Before: COLORLESS

Clarity Before: CLEAR Texture:

plor After: COLORLESS

Clarity After: CLEAR

Artifacts:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS., INC.

Contract: 68-08-00-74

Lao Code: SILVER Case No.: 12334

SAS No.:

SDG No.: MHL955

Matrix (soil/water): WATER

Lab Sample ID:

Level (low/med):

LOW

Date Received: 08/16/89

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

					<del></del>	
CAS No.	:   Analyte	:  Concentration: !	; ; C	: : Q	! ! M	: : : :
7429-90-5	: Aluminum	32.8	8	' !	P	1 1
	Antimony_	39.3			; p	!
	Arsenic		¦ ≃ ¦		; ; ;	· ?
	Barium	102			<del>, -</del> -	• •
					; P	;
	:Beryllium:	4.6				,
17440-43-9 17440-70-0	Cadmium		¦₽.		<u> </u>	
<u>  7440-70-2</u>	<u>Calcium</u>	180000	<u>.</u>	<u></u>	<u> </u>	
7440-47-3	Chromium .	<u>2.8</u> -		~~~~~~	<u> </u>	<u>.</u>
7440-48-4	<u>Cobalt</u>	8.8_			<u>iP</u>	
1 <u>7440-50-8</u>	Copper	13.6	! ₿.	<u> </u>	<u>:P</u> _	;
: <u>7439-89-6</u>	: Iron	267_	¦	! ! 	<u>: P</u> _	;
: <u>7439-92-1</u>	Lead	41.8	!	N*	<u>: F</u> _	!
17439-95-4	<u>Magnesium</u>	38000	¦	<u>:</u>	<u> </u>	í
17439-96-5	Manganese	2780	¦	! !	; P	
17439-97-6	Mercury	0.2 2.0	١Ū	えりる	ICV	9-11-19
17440-02-0	Nickel	9.7	١Ū	···	P	1 4-1.0
17440-09-7	Potassium	5580	;		P	) 1
7782-49-2	Selenium	14.0	: ū	N*	TF	R 43
17440-22-4	Silver	1.6			; P	t .
17440-23-5	Sodium	54600	: =- !		; P	!
17440-28-0	Thallium	14.1	!		F	; ;
17440-62-2	Vanadium :				; p-	!
17440-66-6			Ξ.		<u></u>	• •
1733776656	Z <u>inc</u>	'				) 
!	Cyanide		<u> </u>		<u>:NR</u>	1 1
			-		'	1

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS., INC.

cab Code: SILVER Case No.: 12334

SAS No.:

SDG No.: MHL955

Matrix (soil/water): WATER

Lab Sample ID:

Level (low/med): LOW

Date Received: 08/16/89

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

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•		•	1	•	:	1 1 1 de
CAS No.	Analyte	Concentration	C	D D	M	Lob didn
	!					nuttiply by
:Z429_90_5_:		30900	يسيسا		<u>: P</u> _	nulliply . T
: <u>7440-36-0</u>		937		ASOF.	<u>. P</u> _	se sa Jet tren he
<u>7440-38-2</u>		240	! _ !		N.F	912
; <u>7440-39-3</u> _;	Barium	12330_	;		<u> </u>	50/ 9
: <u>7440-41-7</u>	Beryllium	11.7_	<u> </u>		<u> </u>	1
7440-43-9	Cadmium	1289_	! _ !		: P_	1
17440-70-2	Calcium	446000	<u>ا</u> ا		<u> </u>	1
17440-47-3	Chromium	50.2			; P	:
17440-48-4		48.7	B		; P	1
17440-50-8		1540	-		; P	1
17439-89-6		107000			٦,	;
	Leac	22100	;		P	:丁相
	Magnesium				P	!
7439-96-5			:		P -	1
	Mercury	16,0 15	;	ENTH	CV	DG-12-84
7440-02-0		65.5	;		2	1 ·
7440-09-7					77	
7782-49-2		1.2 761	: U :	WIA	RE	AC R XS
7440-22-4		201	;		P	9-12
7440-23-5		58500	·		P	;
: <u>7440-28-0</u>		83.4	·	_ <del></del>	F	T XB
7440-62-2		58.7	· — -		P	
7440-66-6		49100			P	<u> </u>
	Cyanide				NR	1
:		·				- !
·		·				

plor Before: BROWN

Clarity Before: CLOUDY

Texture:

plor After: BROWN

Clarity After: CLOUDY

Artifacts:

EPA SAMPLE NO.

1 INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS., INC.

Lao Codé: SILVER

Case No.: 12334

SAS No.:

SDG No.: MHL955

Matrix (soil/water): WATER

Lab Sample ID:

tevel (low/med):

LOW

Date Received: 08/16/89

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	:   Analyte   	Concentration	C	Q	M	; ; ;
17429-90-5	Aluminum	32.6	: <u>B</u>		2	1
17440-36-0	Antimony	19.9	: <u>Ū ː</u>		] p	‡ 1
17440-38-2	Arsenic	10.7	;	N	17	丁粉
17440-39-3	Barium	37.0	<u> 81</u>		12_	1
17440-41-7	Beryllium	1.1	111		12_	;
17440-43-9	Cadmium	3.3	<u> 8</u> :		<u> </u>	i P
17440-70-2	Calcium	308000	11		<u>: P</u>	1 1
17440-47-3	Chromium.	2.8	<u>lUl</u>		18	1
7440-48-4	:Cobalt	2.6			18	! \$
17440-50-8	Copper	12.4	<u> </u>		LP_	! #
17439-89-6	l <u>Iron</u>	416	;!		12	;
17439-92-1	Lead	12.9	1_1	<u>N*</u>	<u>i</u> E_	1
17439-95-4	! <u>Magnesium</u>	61600	1_1		12_	i
17439-96-5	Manganese	1310	- 1		12_	1 a C 44
1 <u>7439-97-6</u>	Mercury		: <u>[]                                   </u>		<u>:CV</u>	1 9-11-6/
	:Nickel	25.8			12_	:
<u> </u>	:Potassium		A-1 -		<u>:2</u> _	;
:ZZ <u>S2-49-2</u>	:Selenium_	14.0	: <u>U:</u>			ir 48
; <u>7440-22-4</u>	Silver	<u> </u>	<u>: ال</u>		<u>:2_</u>	<del>!</del>
17440-23-5	:S <u>odium</u> :	<u> </u>	<u>ا _ ا</u>		<u>LP</u> _	;
<u> </u>	' <u>Thallium</u>	1.0_	<u>. n :</u>	· <b></b> -	<u>i</u> E_	! !
1 <u>7440-62-2</u>	: <u>Yanadium</u> _	2.Z	ַנַעַ וּ		<u> </u>	1
<u>7440-66-6</u>	<u>Zinc</u>	2990_	-1		<u> 12</u> _	;
!	Cyanide				<u>LNR</u>	•
!					!	1

Color Before: COLORLESS

Clarity Before: CLEAR

Texture:

Color After: COLORLESS

Clarity After: CLEAR Artifacts:

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Lab Name: SILVER VALLEY LABS., INC. Contract:

Lab Code: SILVER Case No.: 12334 SAS No.:

Matrix (soil/water): WATER

Lab Sample ID:

Level (low/med): LOW

Date Received: 08/16/89

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

,						
CAS No.	: ! Analyte !	:  Concentration  	:   C	Q :	i IM I	; }
:7429-90-5	Aluminum	33.7	B		12	1
17440-36-0	Antimony_	19.9	ιŪ		10	:
17440-38-2	Arsenic	17.4		NS	:E_	EKT
17440-39-3	Barium	35.9	<u>B</u>		<u> </u>	<u> </u>
17440-41-7	Beryllium	1.1	ַ עַ וּ		IP_	1
17440-43-9	Cadmium	6.2	1_1		<u> </u>	{ ·
17440-70-2	Calcium	314000	_		<u>:P</u> _	1
17440-47-3	Chromium_	2.8	ַ עַן		<u>: P</u>	I
17440-48-4	:Cobalt	2.6	<u>u</u>		<u>:P</u> _	1
1 <u>7440-50-8</u>	:Copper	i <u> </u>	B		<u>: P</u>	i
17439-89-6	Iron	696	<u>ا _ ا</u>		18_	ř.
: <u>7439-92-1</u>	Lead	<u> 24.9</u>	1_1	<u>N*</u>	<u>le</u>	1
: <u>7439-95-4</u>	<u> Magnesium</u>	62700	ا ـــا		<u> </u>	:
: <u>7439-96-5</u>	Manganese	1 <u>340</u>	- 1		<u> </u>	م ح موا
: <u>7439-97-6</u>	Mercury	0.2 SQ	Щ.	アンな	TCA	D4-11-89
: <u>7440-02-0</u>	Nickel		Πī		<u> </u>	;
17440-09-7	: <u>Potassium</u>		ָּיַטַ :		<u> </u>	1 2 ~~
ZZ82_49_2_	:Selenium_	14.0	! П.	<u>N*</u>	<u> </u>	: R **
+ <u>7440-22-4</u>	:Silver	: <u>1.6</u> _:	ļŲ,		<u>; p</u> _	;
17440-23-5_	Sogium	29300			<u> 12</u> _	i
17440-28-0	Thallium_	<u>1.0_</u>			<u>LE</u> _	1
17440-62-2	<u>Yanadium</u>	2.7	Щ.		<u> </u>	;
17440-66-6	<u> Zinc</u>	3060_			18	:
!	Cyanide				TNB	
1			_		i	i

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS

Clarity After: CLEAR

EPA SAMPLE NO.

INORGANIC ANALYSIS DATA SHEET

Contract:

Lab Code: SILVER

Case No.: 12334

SAS No.:

SDG No.: MHL955

Matrix (soil/water): WATER

Lab Name: SILVER VALLEY LABS., INC.

Lab Sample ID:

Level (low/med):

LOW

Date Received: 08/16/89

% Solids:

0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

:	<del></del>		!	! !		!
CAS No.	Analyte	Concentration:	C	Q	М	* *
; ; <u>7429-90-5</u>	Aluminum	17.6	: _ : : <u>B</u> :		- i i i	i !
17440-36-0	Antimony	19.9	<u>: []                                   </u>		12	1
17440-38-2	Arsenic			NM	<u>;                                    </u>	1
17440-39-31	:Barium	14.9	8		12_	i I
17440-41-7	:Beryllium	1.1	ַטַ :	<u> </u>	_ <u></u>	}
17440-43-9	:Cadmium	1.8	<u>. U</u>		<u> </u>	}
17440-70-2	:Calcium	316000	: _ :		_ <u>:P</u> _	l i
: <u>7440-47-3</u>	Chromium	2.8_	<u>زنا</u> ا	! !	12	t ·
:7440-48-4	:Cobalt	2.6	ַטַ ו	<u> </u>	_ <u>:P</u> _	i
17440-50-8	Copper	10.4	B	<u>.</u>	<u> </u>	ł
17439-89-6	(Iron	4.75.75			<u>: P</u>	<b>!</b>
17439-92-1	Lead	1.8	ַנַעַ וּ	N*	.≟E.	1
17439-95-4	:Magnesium	68200	1_3		12	1
17439-96-5	:Manganese	3180	_		<u> </u>	ايرد
17439-97-6	Mercury	0.2 20	ַ עַ	N IX	BLCV	9-1189
17440-02-0	Nickel	13.2	B		1.2	<b>.</b>
1 <u>7440-09-7</u>	: <u>Potassium</u>	2010	B		<u> : P</u>	
17782-49-2	Selenium	14.0	ָנֵין:	N*	:F	1 AS
17440-22-4	Silver	1.6	<u>u</u> <u>l</u>		; P	† •
17440-23-5	Socium	45000	<u> </u>		: P	} <del> </del>
7440-28-0	Thallium	1.0	ز یا :		<u>; F</u> _	<b>,</b> <b>,</b>
17440-62-2	: <u>Vanadium</u>	2.7	ַ טַ		<u> </u>	<del>!</del> !
1 <u>7440-66-6</u>	: <u>Zinc</u>	219			; P	;
† *	Cyanide				LNR	}
·			_;			! !

Color Before: COLORLESS

Clarity Before: CLEAR

Color After: COLORLESS

Clarity After: CLEAR

Artifacts:

# APPENDIX D RECORDS OF COMMUNICATION

	PHONE CALL DISCUSSION STE	ELD TRIP CONFERENCE				
RECORD OF COMMUNICATION	OTHER (SPECIFY)					
	(Record of item checked above)					
ro: Standley Pace	FROM: Kevin Mackey, E & E FIT	November 27, 1989				
	I Maky.	TIME				
SUBJECT Amount of land irrigated by		10:30 A.AM				
Richardson Flat tailings dar	the G.M. Pace diverson ditch do m.	wingradient of the				
UMMARY OF COMMUNICATION						
Mr. Pace informed me that both to Pace diversion ditch. According diverted water and use it to irracres).	g to Mr. Pace, both he and his c	ousin own 47% of the				
In addition, Mr. Pace informed me that the Gilmore family owns 53% of the water from the G.M. Pace ditch but he does not know how much land they irrigated with water diverted from the G.M. Pace ditch.						
•						
	•					
-						
,						
·						
CONCLUSIONS, ACTION TAKEN OR REQUIRED						
concessions, across taken on negotiaes						
INFORMATION COPIES TO:						

	PHONE CALL DISCUSSION FIELD	TRIP CONFERENCE				
RECORD OF COMMUNICATION	□ OTHER (SPECIFY) (801) 466-6094					
	(Record of item checked above)					
TO: James Gilmore Rancher	FROM: Susan Kennedy, E & E FIT	DATE 12/11/89				
Rancher	want Geres Co	9:00 P.M.				
SUBJECT Number of acres and use of 1	and irrigated from G.M. Pace Ditc	h				
SUMMARY OF COMMUNICATION						
When asked the number of acres ir use of the land, Mr. Gilmore prov		d the nature of				
- Approximately 100 (between 95 t from the G.M. Pace Ditch.	o 110) acres of his land are irri	gated by water				
- The irrigated land is used to g	row alfalfa, and to graze sheep.					
		_				
*						
CONCLUSIONS, ACTION TAKEN OR REQUIRED						
Use 100 acres of irrigated land to water —— Richardson Flat Tailin	o determine the population serve gs HRS package.	d by surlace				
	<u> </u>					
	•	·				
INFORMATION COPIES						
то:	•	·				